

THE
COMPLETE
CATTLE KEEPER;

OR,
FARMER'S AND GRAZIER'S GUIDE
IN THE
CHOICE AND GENERAL MANAGEMENT
OF
Neat Cattle & Sheep.

WITH
THE DISEASES TO WHICH THEY ARE SUBJECT, AND
THE SYMPTOMS AND REMEDIES.

BY B. LAWRENCE.

EMBELLISHED WITH SIX APPROPRIATE ENGRAVINGS.



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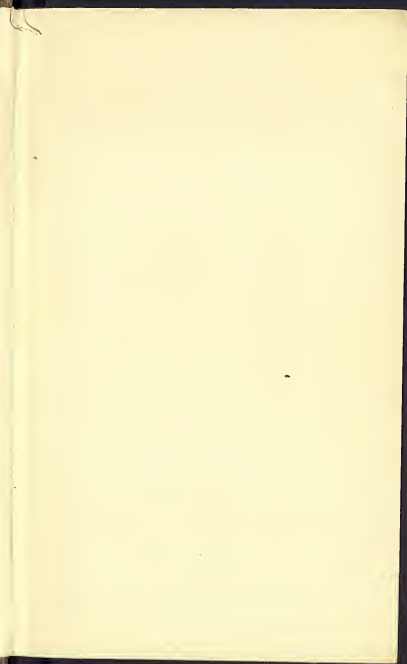
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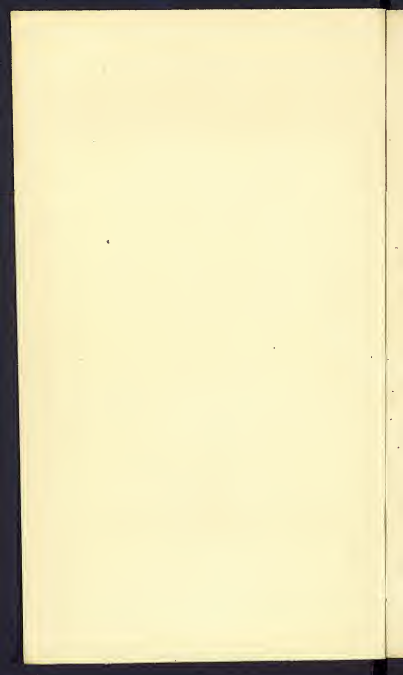
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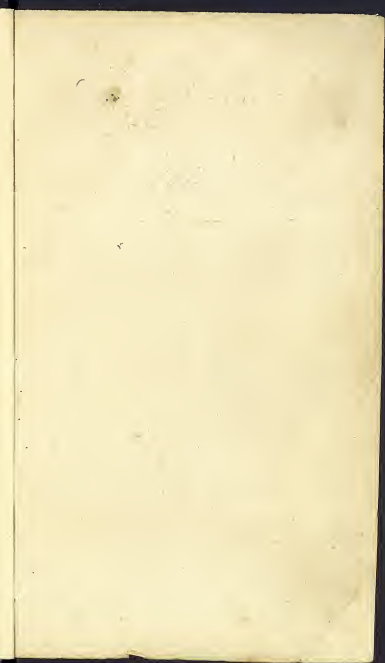


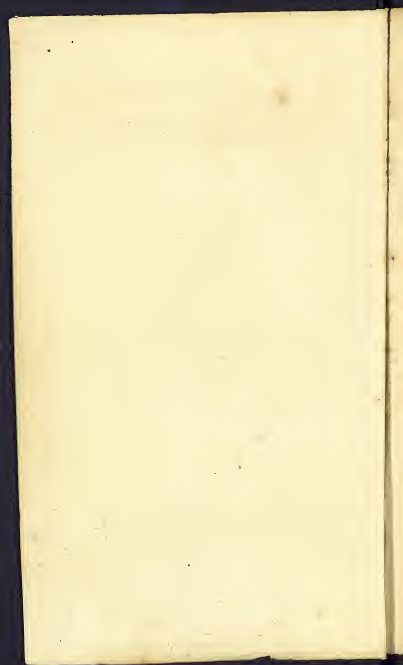
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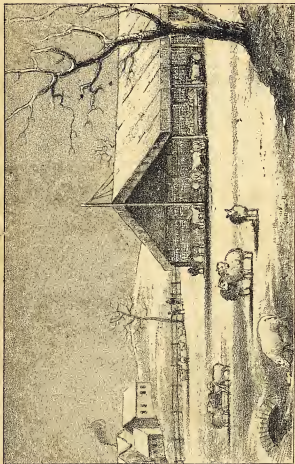












Portable erection for affording shelter to sheep in snowy weather.

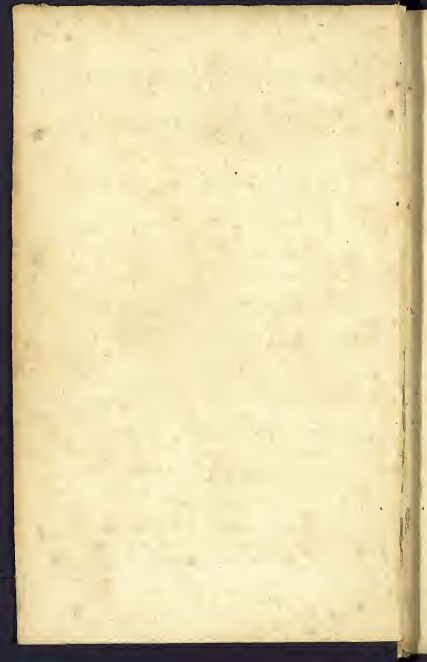
THE
COMPLETE CATTLE-KEEPER,
OR,
FARMER'S AND GRAZIER'S GUIDE
IN THE
CHOICE AND MANAGEMENT
OF
NEAT CATTLE AND SHEEP;
INCLUDING,
USEFUL OBSERVATIONS AND SUGGESTIONS
RELATIVE TO
THE COMPARATIVE VALUE OF THE VARIOUS BREEDS;
AND ON THE
INJURIOUS EFFECTS RESULTING FROM IMPROPER FOOD
AND IMPURE WATER.

HINTS TO DAIRYMEN,
ON THE
BEST CONSTRUCTION OF THE COW-HOUSE, OR STABLE; AND ON
THE MANAGEMENT OF MILCH COWS:
A DESCRIPTION OF THE
INTERNAL STRUCTURE OF NEAT CATTLE,
AND OF THEIR DIGESTIVE SYSTEM.
THE DISEASES TO WHICH CATTLE ARE SUBJECT,
IN WHICH
THE CAUSES ARE POINTED OUT, THE SYMPTOMS DESCRIBED, AND
APPROVED METHODS OF CURE GIVEN.
THE PROPER TREATMENT OF CALVES AND LAMBS;
AND EVERY OTHER NECESSARY INFORMATION.
EMBELLISHED WITH SIX ILLUSTRATIVE APPROPRIATE ENGRAVINGS.

BY B. LAWRENCE.

LONDON:

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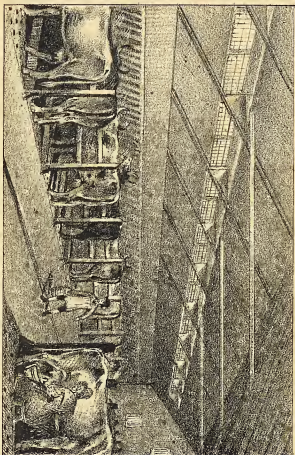
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Plate II.

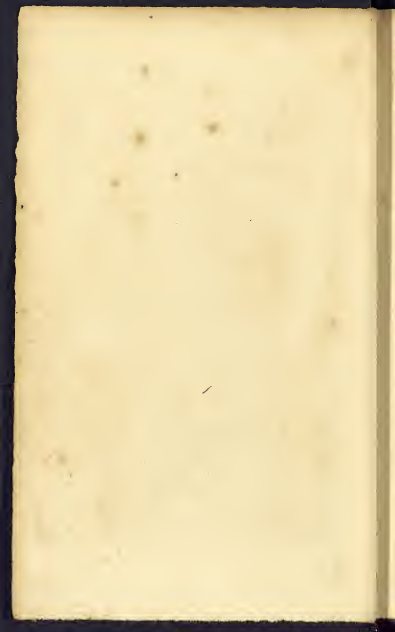


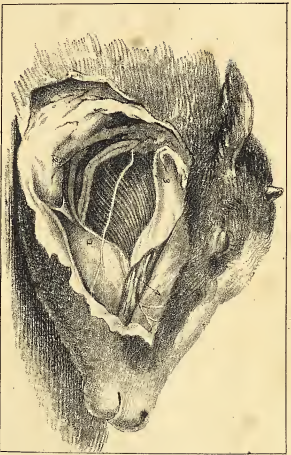
Exterior View of a farmhouse on Shubbe, with the Drying-jacks after the Dutch Method.



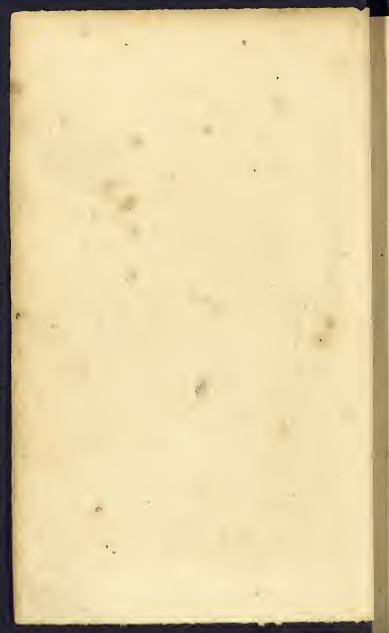


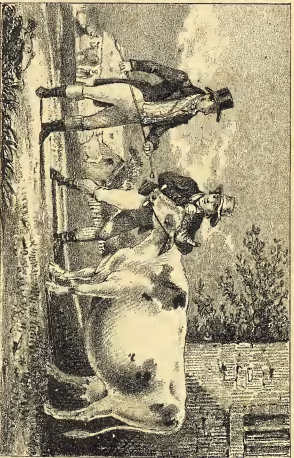
Interior of the Cowhouse or Stable, upon an improved plan.





Representation of the Bleeding Vein in Ruminating Animals





Representation of the manner of milking Blom Cattle by the Probanz.

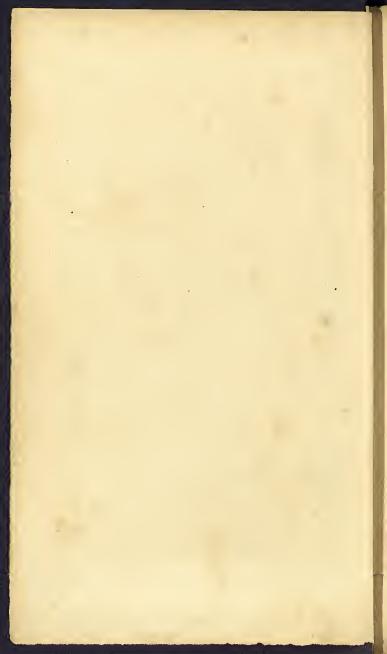
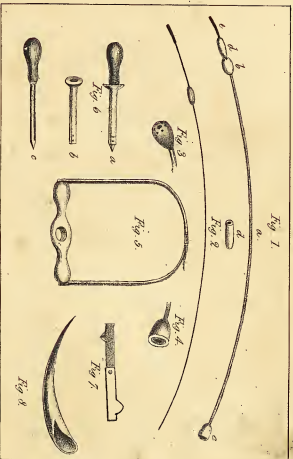
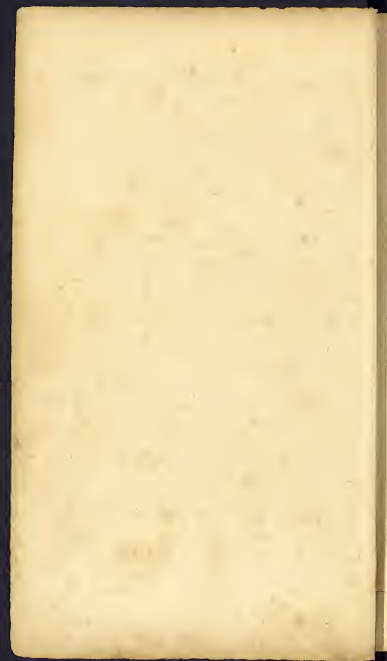


Plate VI.



Representation of the Instruments used in treating the diseases of Goat Cattle and Sheep.



THE

Complete Cattle-Keeper.

NEAT CATTLE.

GENERAL OBSERVATIONS.

THE bull, the cow, and the ox, animals all included in, and designated by, the general term of neat cattle, form an essential and important part of every farmer's live stock; and, under good and careful management, contribute very materially to increase his comforts, and assist him in his means of wealth. Indeed, if we consider their very great utility, and the wonderful variety of productions these valuable animals contribute towards the support of mankind, we must certainly rank them among the most useful of the creation. A single cow, for instance, will, in the course of a season, yield so much milk, that two hundred pounds of butter may be obtained therefrom; and if to this be added the cheese, which several of our countries are so famed for producing, we have two important articles of human

sustenance, from the superabundance of milk which these animals are capable of yielding. Cows, indeed, are profitable in all respects, not only in their present produce, but in their rearing calves, and in fetching nearly their first cost, when age requires that they should be fattened for the market.

In a moderate establishment, where several cows are kept, it will be found that, after supplying the family, the surplus butter and cheese will always pay the expences of keep, and leave a something towards paying the first cost; so as ultimately to make the fattening of the animal, when no longer serviceable for the dairy, an object of actual profit.

In Mr. Harley's dairy, at Glasgow, in which ninety-six cows were kept, a large stock of pigs were also maintained on the waste milk and washings; and twenty roasters were selected from them every Wednesday, and sold, generally at half-a-guinea each. Indeed, it is necessary that at least one sow should be kept to every cow, as the dairy always affords skim-milk, butter-milk, whey, and other washings, sufficient for her maintenance.

If the bull and the ox do not equal the cow in

their produce while living, they put in a very considerable claim for their share of general usefulness, as beasts of draught, at least for agricultural purposes, particularly in drawing the wain, or assisting at the plough; they are equally serviceable and more enduring than the horse, and, after passing as much of their lives in the service of their owners as may be considered useful or necessary, they are fattened for the market, and supply our table with a most substantial article of food.

There is, in fact, scarcely a particle of these animals, but what is applied to some useful purpose; even the blood is of service: the butcher uses it to feed swine; the chemist employs it in the preparation of Prussian blue; the refiner in purifying his sugar; and the farmer for manuring his land. Their fat is converted into tallow, and made into candles; their hides, tanned and curried, make leather of the best and strongest kind; their hair improves and adds to the durability of the cement of which the walls and ceilings of our dwellings are covered, and their horns are made into combs, handles for knives, and a variety of toys. Their bones, a cheap substitute for ivory, are, by the mechanics of

large towns, manufactured into a great number of useful articles; considerable quantities are also converted into ivory black, or are ground, and used as a most excellent manure; and, lastly, the flesh of these noble and useful animals forms, in their infancy, one of the most tender and delicious, and in their more mature years the best and most substantial dishes, that ever graced the table either of the prince or the peasant.

Of the choice of neat cattle for stock.

IN selecting neat cattle for stock, two important considerations should invariably be kept in mind;—the first is, the health and soundness of the stock from which they are purchased; and, secondly, the nature and quality of the soil upon the produce of which it is intended to feed them; for unless these harmonize in some degree, it will be useless to expect that certain advantage from their possession which a more prudent foresight would have rendered little less than secure.

For this purpose, it is essential that stock, whether for breeding, for the dairy, or for the shambles, should be selected, not from a chance collection at a market or a fair, but from a breed of which you either know, or can ascertain,

every particular, not only as to the stock from which they were bred, but also as to the manner in which they have been reared, the nature of the food upon which they were sustained; and last, though not least, the diseases to which they or the breed from which they were produced are or have been subject. This latter consideration is particularly important; for if they are much subject to disease, arising from constitutional rather than accidental circumstances, you will do better to have nothing to do with them; but if their diseases be rather occasional than periodical, and resulting merely from improper food, poorness of living, or unhealthy situations, you may hope by a better mode of treatment to restore them to their best state of condition, and improve them in the breed.

To afford fair prospects of a healthy stock, neat cattle ought to be bred from cows of a good make and shape; the bull should also be of the same description; indeed it is considered that the soundness of the issue depends more upon the male than the female.

Much has been written, and, perhaps, much more said, as to what breeds are the best; and a considerably greater stress has been laid on this

part of the question, than is borne out by any positive result; there are good and bad of all kinds; and provided you select sound and healthy animals from warranted stock, you will, if you treat them properly, have little to care for, and less to fear.

Always purchase cattle that have been fed on lands of a *poorer* quality than your own; but you must not too suddenly put them to the richer food, or they will be liable to several dangerous diseases; it rarely happens, however, that cattle, purchased from rich lands thrive well on poor soils; but on the contrary, those from poorer farms do well on good land.—The choice of neat cattle, therefore, for the stocking of farms, must, in a great degree, be regulated by the nature and quality of the soil intended to feed them on.

It is also essential that the cattle should be young, as well as healthy and of sound constitution; for the younger they are, the more likely they will be to do service; their age may easily be known by the teeth: like sheep, they have no fore teeth in the upper jaw; it is the lower, therefore, by which this must be determined: the horns also afford some guide in this respect.

The eight fore teeth of the lower jaw are

shed, and replaced by others which continue throughout life: the two middle fore teeth fall out at about two years old, and are succeeded by others not so white. At three years old, they have two more, next to those of the previous year; and thus, by the two succeeding years, all the fore teeth are renewed; they are then termed full-mouthed; and are five years old. At the sixth year the row is even, the last two being completely up. Besides these, they have ten grinders in each jaw.

At the age of three years, the horns are smooth and even; in the course of the fourth year a wrinkle or circle forms round the basis of the horn, near the head; this is every year succeeded by another, which always seems to move the other forward. At looking therefore at the horns of neat cattle, if the first circle be considered as three years, it will be an easy task to tell the age of the beast at any subsequent period. An implicit reliance cannot, however, be placed on these marks, particularly in purchasing of strangers, or cow-jobbers, such persons having been known to file down some of the animal's teeth, and alter the appearance of the horns, so as to give them the semblance and marks of

young cattle of the most valuable breeds, and pass them off as such to strangers.

Of the choice of cows for the dairy.

IN selecting cows for the dairy, the previous remarks will be found particularly applicable; it will therefore be superfluous to recapitulate what we have there said; but the purchaser will do well to be careful that the cows he selects are of a tolerable size, young, and of a form and disposition adapted for fattening—a use to which they must of course be put when no longer serviceable for the pail. By many the Alderney breed are preferred, on account of the richness and quantity of the milk they produce; but if their high cost as milch cows, and their low price with the butcher when done with, are taken into the account, they will not ultimately prove of so much advantage as has been generally supposed; although, all things considered, they may perhaps be best for a private family. The use to which the milk is intended to be put, is the criterion which should decide the choice—the milk of some cows abounds with the oily principle, or that of cream, much more than others; if butter therefore be the object, these

are decidedly preferable; but if cheese be more worth attention, the choice should be given to that kind the milk of which produces the curdy principle in the greatest quantity. Near large towns, and particularly in the vicinity of the Metropolis, where the milk itself is a very important object, the preference is given to the Durham breed, not only because they are good milkers, but as being generally of good size, mild temper, and easily fattened when age renders them useless in the dairy.

The particular age at which cows should be purchased, has been repeatedly asked. If we take the opinions of the best informed writers on the subject, founded on the practice of the most successful dairymen, we should say, not younger than three, nor older than five, years: It is too generally the practice to put cows to the bull too young; this weakens the constitution, not only of the cow herself, but also of her progeny; and although they may be brought earlier to the pail by this plan, it is certain that it produces a premature maturity, and the animal becomes not only more subject to disease, but its productive ability necessarily is much sooner exhausted; in

the end, then, it will be found to prove a loss rather than a gain.

If the situation of the farm be cold and exposed, it will be essential that the cows should be such as are inured to the place; and it would be adviseable to preserve or keep up the stock by breeding; but if the farm is in a southern or more sheltered situation, and the pasture forward and abundant, great care will be necessary where cattle is brought from a colder or less productive situation into luxuriant pastures. Change of food, particularly of pasturage, has a great effect on neat cattle; and when suddenly made, is often productive of very serious consequences. They should first be put into situations the most like that from which they have been taken; if from better pasture, into the best you have; but if from poorer, into the worst and barest parts of the farm; and after a sufficient time has been allowed to adapt the constitution to the change, they may be gradually removed into the pasture in which it is intended they shall remain.

Of the proper treatment and food of neat cattle generally, and of cows in particular.

THE profit and advantage that are to be derived from the keeping of neat cattle, or from the produce of the dairy, depend greatly on their treatment and management. Soil has a sensible effect on the quality of the pasturage, and this also operates similarly on the animals which graze thereon. In Exeter, the butter is excellent, but the cheese the worst in the kingdom; while in Somersetshire the reverse is the case;—the cheese there manufactured is of a very superior quality, while the butter is uniformly indifferent, or bad. The richness of the butter made in Scotland, is generally attributed to the cows feeding upon the sweet and short pasture in the glens; the soils of other parts of the kingdom have also a similar effect on the animals fed thereon; but, generally speaking, old pastures are the best; new-laid ones being often productive of disease.

In natural pastures, there is usually a sufficient variety of good herbage; and if the animal

be allowed to rove about, it will select such only as instinct points out to be proper, or agreeable to its palate; and in doing this uses such a degree of exercise as is conducive to health and perfect digestion. This is almost invariably the case where the animals are inured to the soil and climate; but when the farmer or dairyman is obliged to have recourse to artificial food and confinement, the animal becomes essentially different: an unlimited quantity of food is a temptation which few animals can withstand; and when it is not accompanied with a due portion of exercise, often proves of bad, if not of fatal consequences. It is a fact, equally applicable to the brute, as it is disgraceful to the human being, that where the inordinate appetite for food is indulged, an inclination or sensation of thirst, is invariably felt; and that by freely indulging in either extreme, a capability for extension of appetite is ingendered, which soon paralyzes the powers of the digestive system, and produces a train of disorders injurious to the whole animal economy in their existence, and totally destructive in their effects.

When neat cattle, but particularly cows, are brought from a distant county to the farm or

dairy, they will require particular care and attention until accustomed to the soil, food, and other local circumstances connected with their new residence. If they have travelled far, they should, at first, be put into the stable, or cow-house, and allowed a large quantity of litter, but must be taken out of the stable several times a day, for the benefit of fresh air. They should also be well rubbed and brushed all over the body, particularly about the joints; and if they seem fatigued, their legs may be rolled in bandages kept wet with warm water, in which a little vinegar has been mixed.

They must not be put too quickly upon any particular diet; but gradually inured to that system of feeding which it is intended they shall follow. At first, food that it is easy of digestion, is decidedly the best; and, if cooked, it will be better still. Too much must not be given at any one time; let them have it in small quantities, and frequently. The water which they drink should, at first, have the raw chill taken off, and a little bran or meal may be put into it, together with a small quantity of salt.

If either of the cows should be near calving, let her be bled, but not too profusely; this will

render her calving more easy, and less liable to accident.

To render this important part of our subject clear and distinct, we shall divide it into the following general divisions—

- I. The cow-house, or stable.
- II. The necessity of dressing and cleaning.
- III. Foddering, or feeding.
- IV. Water.

I.—Of the cow-house, or stable.

THE most healthy stables are those which are open to the east, or have an eastern aspect, and are built on a dry and elevated situation. It is a common practice to build them too close; and it is an equally erroneous opinion, that cold is injurious to cows, or that they should be carefully guarded against it: this opinion is productive of many of the worst disorders with which they are afflicted. The cow-house is, in general, not only very low, and with narrow openings, but it is also shut up closely as possible, if the weather happen to be a little severer than usual. A more pernicious or more fatal practice can scarcely be conceived. Experience has proved

that cows kept in the open air, without the slightest shelter, suffer but little inconvenience, except in damp or wet weather; it is better, no doubt, to keep them in a more sheltered situation; BUT THE STABLE SHOULD NEVER BE COMPLETELY CLOSED UP, HOWEVER COLD THE WEATHER MAY BE, although it is desirable that strong draughts of cold or damp air should be guarded against, especially in winter. It may be held as a general rule, that the stable is too close, when, on entering, the breath is affected, or any smell of urine can be perceived.

If it be important to keep cow-houses or cattle stables well ventilated, it is no less so to keep them clean. Dung, if left therein, soon renders the air unwholesome, and engenders a train of putrid disorders.—Cows in a stable should not be too close—a square space of six feet each way should be allowed to each cow. Two or three ventilators near the ground on the north side, affords, at a trifling expence, an excellent way of renewing or sweetening the air in stables in the summer-time; and on the south side, in winter, without occasioning draughts; and these may be shut when necessary, either by means of straw or otherwise. The ground of the cow-

house should be of brick work or stone; with the sides elevated just sufficient to cause it to drain towards the middle, where there should be a gutter, to carry off the urine and excrement, and convey them into a water-tight tank, or at all events into a large covered hole on the outside; and by no means, as is too frequently the case, into an open ditch, on the outside. By these simple means, the animals and their habitations may always be kept clean and sweet.

The Dutch and Flemish cow farmers keep their farms in a state of the greatest neatness; and by pursuing a systematic plan, obtain full three times as much manure as the English farmers do, being generally able to produce sufficient to dress the whole of their lands every year.

The preparation of manure being very imperfectly understood in this country, and as many of our farmers throw away or are annoyed by what what is a source of wealth to the Dutch and Flemish farmer, we shall give an outline of the mode pursued.

To accomplish this important end, they are very careful to make, at the back of their stables and cattle sheds, a large round hole of about three feet deep, and capacious enough to contain one

month's dung; the sides and bottoms of this are built water tight of brick clinkers, or stones. The floors of their stables and cattle-sheds are also made hard, dry, and water-tight, with water-tight drains to lead to another pit made in the same manner, also at the back of the shed at a few yards from, and of a similar size, to the dung-pit; so that all the liquid manure necessarily runs from the stalls into this cesspool or tank;—to this place also drains are made from the privies, and from the sinks in the kitchen and washhouse; so that every drop of soap suds, wash, and all dirty and refuse water, finds its way to the cesspool; but which is never allowed to run over.

The fields of corn stubble, and the second year's grass land, whether of clover, ray-grass, or sainfoin, are carefully pared into thin clods: These clods, containing a proportion of the roots of the plants which have before been harvested from them, and much garden mould, become useful auxiliaries to the straw, bean haulm, and any other waste produce, capable of being dried for bedding, and spares the use of those materials, which if solely applied would require half the land of the farm to supply. This

refuse, together with the parings of their lanes, the edges of their walks, and sides of their hedges, are dried, and then carried to their barns, where they are piled in a kind of stack, and portions of it are carried daily as it may be wanted for bedding into the cattle sheds.

The bedding of the cattle is made with fresh clods every morning and evening; that part which has been under the heels of the cow is, every morning, thrown under her fore feet, and that which was under her fore feet, is thrown into its place; and fresh clods, about one hundred and fifty pounds weight, is added to the bedding, and then straw, or other dry vegetable produce is strewed over that;—the same is also done every evening. The sheep and pigs are only supplied with fresh bedding once a day. The bedding lies under them seven days and seven nights, when the stalls are cleaned out, and the dung conveyed into the dung pit at the back of the cattle sheds, where it lies till it has had the four weeks' dung thrown into it.

This mass is thus composed of portions of manure which have laid in the dung pit four weeks, and upon which all the ashes and sweepings of the house and premises are thrown daily.

The reservoir, or tank, into which all the drainings of the stables, &c. are conveyed, and which is necessarily contiguous, is, every other day, if not full enough, made so with water, and after being stirred up, is thrown with a scoop over the heap of dung. Now as this heap contains four weeks' dung, fourteen wettings with such rich fermenting liquid more than doubles the value of the whole heap for agriculture purposes.

At the end of the fourth week, the dung hole, or dung pit, is emptied, by which means the pit's contents is again turned over, and its most rotten parts brought to the top. It is now formed into a heap from three to five feet high, and carefully covered with sods; by this covering, the heat and goodness of the dung is prevented from evaporating, and the rain water is kept from penetrating into it, which would otherwise check its fermentation. When the heap has lain and fermented during two or three months, it is carried to the fields to be manured with it, and the sods which covered it to keep in its warmth, are thrown into the bottom of the dung pit, where they lay and become excellent manure.

The quantity of cattle kept upon most of the Dutch farms, is at the rate of five cows or fifty

sheep, to every twenty acres of land; and the quantity of manure produced is from ten to twenty tons per acre, annually.

Pigs, rabbits, and poultry, should also be kept away from the stable; as they tend to make it very unwholesome.—The dust of the thrashing and winnowing also will get into the stables, if too close to the barn; and, if too continually inhaled by the cows, engender consumption.

We have said, that it is an erroneous opinion, that cold is injurious to cows, and that some of the worst disorders with which they are afflicted are attributable to the effect produced by this opinion. This may appear rather problematical to dairymen, or to farmers who keep cows for their milk; for their daily observation induces the belief, that the secretion of milk is most abundant in cows that are sheltered from the weather; many, therefore, shut up the stable, and even deprive the animals of light and almost of air during a considerable part of the year. Were they, however, to place in their account against this supposed increase of produce the expence of purchasing fresh cows, to replace those that have been, we may almost say, suffocated; they would find their gain to be in an inverse ratio to what

they had supposed; and then, perhaps, they might be induced to abandon this pernicious practice, and suffer their cows to feel the truly-beneficial effects of light, and sweet and wholesome air.

A stable or shed for cows should be so formed that a space twenty-four feet in length should be allowed to every four cows, and so in proportion for any further number; the floor should be placed above the level of the ground, the sides slightly elevated, so that all moisture may run off to a drain in the middle, which should be conducted to a covered pit on the outside of the building. The place should be lofty; and to secure a free circulation of air, two windows to every twenty-four feet will be necessary.

The stores for the fodder should be separated from the stable or shed by a brick or stone wall, if adjoining thereto; but if over the stable, by a brick or tile floor, which by its compactness keeps the dust and noxious fumes from the food.

Every precaution should be taken to keep the place clean and wholesome; and in this respect, it may not be amiss to imitate the practice of the Dutch cow-keepers, who are as careful to keep their cow houses sweet and clean as the English gentleman is in managing his stable.

For the best formation or shape of the stable,—See plates II and III.

II. *Of the necessity of dressing and cleaning neat cattle.*

IN the stable in which horses are kept, a brush and curry-comb are indispensable requisites; but in the cow-stable, these are rarely to be found: this can only arise from an opinion that cleanliness is not so essential to the cow as to the horse. This neglect is the source of many evils.—Cows cannot be healthy, unless the insensible perspiration goes on regularly; and this cannot be the case when they are put into wet land, or kept in dirty houses, and no care taken to remove the dirt or matter by which the perspirable vessels or pores of the skin, are obstructed. In dairies where the dressing of cows is regularly practised, they are uniformly stronger, and in better condition; are less subject to diseases, and yield more milk, and that milk of a very superior quality.

Cows should be dressed once a day, and on no account should any dung be left on their coats. This operation will not be found difficult when

it is regularly practised, and plenty of fresh litter allowed, and their dung often removed, that they may be prevented from lying down in it. Cows thus managed, will be found much more profitable than otherwise; and the improvement will be observable both in the dung heap and in the milk.

Many persons consider that if cows have sufficient food, it is all that is necessary; but we are convinced from experience—the best of all teachers—that, however well cows are fed, they will not be found near so profitable as they would be, if the care and attention so essential to their cleanliness and well-being were duly attended to; while those that are thus taken care of, will be found to thrive even upon more indifferent food.

If the udder and teats of the cow are occasionally washed with warm water, those hard swellings, which are often so very troublesome, will be prevented, as will also warts and other excrescences to which the udder is subject without this attention. The udder, and especially the teats, should be washed, immediately before the cow is milked.

III. *Of foddering, or feeding.*

IN the various publications which have appeared relative to the management of neat cattle generally, but of milch cows in particular, there seems to be too much stress laid on the quality of the food that should be given them, to the exclusion of a much more important consideration; namely, the health of the organ that is to digest and assimilate the food. This has been a very common error, and has led to the opinion, that the lactiferous powers of the cow may be increased to a great extent, merely by supplying the animal with that extra natural nutriment which is so abundantly found in the artificial grasses, and the various roots that are now getting into use. This is, however, a great mistake; the power of the digestive organ is limited, and if we give the animal such food as exceeds either in quantity or quality the power of the organ which is to assimilate it, we are sure to defeat the object we endeavour to obtain.

It has also been considered, and some experiments have been published to support the opinion, that by a judicious use of the artificial

grasses in summer, and of the saccharine and mucilaginous roots in winter, the produce of milk may not only be increased, but even extended to a much greater length of time. A little reflection will, however, convince us, that in this, as well as in many other farming concerns, people want to take more out of a thing than its nature is capable of yielding: they want to kill the goose that has the property of laying the golden eggs, in order to get them before the proper time. But in this, as in every other thing of the same kind, such persons are blind to their own true interest.

The proper management of neat cattle, as well as of milch cows, is a very plain and simple thing. If we have a sufficient extent of old pastures for them, very little reflection upon the subject is necessary; but if we are compelled to have recourse to what are termed, artificial means, then it is that our skill and judgment are brought into trial.

Perhaps, by a judicious use of mangel-wurzel, and other nutritious roots, we may promote and extend the lactiferous services of the cow in a considerable degree; yet we must never lose sight of the important truth, that the stomach,

as well as the udder, are of limited power, and that the former must not be oppressed with an improper quantity of food, nor the latter with too much blood, however wholesome and nutritive the food may be.

It is one of the consequences of improper feeding, that it is the cause of difficult labour in the cow, and the occasion of the frequent necessity for the assistance of the cow-doctor in the delivery of the calf. Mr. J. White, in his *Compendium of Cattle Medicine*, describes the appearance which presented itself on opening a cow that had died from over-feeding. When she was near calving, she was kept in the field, and liberally supplied with hay (in winter): one morning, she was found dead, and her death was attributed to her having fallen into a sort of hollow, which was so inconsiderable, that, had her stomach been free from the load that was found in it, she could undoubtedly have got up again. "I found," says Mr. White, "the rumen, or paunch, weighing nearly one hundred pounds, and the poor calf seemed to have been driven into a corner, and suffocated. I am decidedly of opinion," adds Mr. W. "that the cause of the peculiar difficulty in parturition, or rather the

frequency of it, in the cow, is owing to improper feeding."

If we observe the intimate connexion which exists between the fourth stomach and the udder of the cow, we shall soon perceive the fact, that when the former becomes inflamed or disordered, the latter is sure to sympathise with it; and also that if the udder becomes materially injured, the stomach inevitably participates. This is another circumstance which should induce us to be very careful in feeding milch cows whenever we are under the necessity of taking them from their natural pastures.

When mangel-wurzel was first introduced, it was given profusely and indiscriminately; and considerable injury was done in consequence. In the *Farmers' Journal*, (in 1814), it was stated, that all Mr. Coke's cows were fed upon mangel-wurzel, and that only, for a few days, strewed upon grass land, in the same manner that turnips are given in some counties; and that they were effected with the palsy, and some of them lost their milk; but that as soon as the mangel-wurzel was discontinued, they began to recover. In the same *Journal* it is also stated, that when mangel-wurzel was given by a practical farmer

to his cattle in large quantities, and without hay, it in many instances caused a partial paralysis of the hind parts, the animals appearing as if they had been injured in the back. And yet it is added, that Lord Crewe gave nearly sixty pounds per day to milking-cows with a proper proportion of hay, not only with impunity, but with the best effects.

In another number of the Farmers' Journal, it is stated, that in the spring of the year, Mr. Birch gave each cow a bushel of mangel-wurzel daily. A sweet flavour was soon distinguishable in the milk, the quantity increased, and the butter partook of the sweet flavour of the milk. The cows were very healthy, and remained so throughout the summer. The second year's crop was given in part to the cows as soon as taken from the ground, and the same improvement was soon observed in the milk and the butter, as well as an improved condition of the cows.—Mr. Birch wished to save a pasture for mowing that season, and reserved the other part of the roots till the spring; and in the month of May he found them as sound as when first gathered, and they remained so until the cows had finished them. The latter end of June, he

gained his crop of hay, and delightful May butter, and his cows had all the appearance of the highest state of health.

The results of the following experiments will we think, be worth the farmer's attention.

* On the morning of the 18th of October, two milch-cows, that had calved in the spring, were turned into an over-eaten pasture, and fed every morning and evening with hay only, and the products being measured at each meal, the result for one week was—one hundred quarts of milk, eleven pints of cream, and four pounds and a half of butter. The cows remained in the same pasture another week, and were fed with mangel-wurzel and hay, each cow having half-a-bushel, sliced, and given to her morning and evening; the week's result was then found to be—one hundred and thirty quarts of milk, seventeen pints of cream, and six pounds and three quarters of butter. The next week the cows were fed upon hay only, and the result was only eighty-seven quarts of milk, eight pints and a half of cream, and three pounds and a half of butter.

In Ireland, the quantity given to each cow varies from twenty-five to one hundred and

twelve pounds daily; and this is given not only without any bad results, but with considerable advantages, both as to the dairy and in feeding for the butcher: it is, however, accompanied by a moderate quantity of hay, and sometimes by an intermediate feed of turnips.

Mr. Pomeroy, an eminent farmer, ordered three wheelbarrowsful of this root, fresh pulled from the ground, to be thrown to his milch cows on a pasture. The food was so delicious, that they contended for exclusive possession; and the strongest having succeeded, she continued to devour the roots with avidity, till they were all consumed, and herself gorged beyond the possibility of recovery. But in this case, instead of paralysis, the same symptoms took place as are caused by unrestrained feeding upon fresh clover. The rest of the cows were subsequently fed upon the same diet, but given in moderation, with a proportion of hay, and they continued in perfect health.

From all the observations it would appear that mangel-wurzel is a valuable, nutritious root, well adapted to the feeding of cattle, and one from which no injury need be apprehended when proper care is taken in feeding the stock with

a moderate quantity daily; like clover, turnips, and aftermath, it abounds in rich, nutritious matter, and when used for food must, like them, be accompanied with a proportion of hay.

It has been suggested, and very properly, that during the heat of summer, cows should be sheltered by suitable sheds, where they may be advantageously fed with tares, cabbages, turnips, potatoes, mangel-wurzel, &c.; and it is most probable, that by indulging the animal in a little variety with regard to food, its health would be improved, and the formation of milk materially increased.

It is certainly of importance and most profitable to feed cows liberally, giving it them often and in small quantities, especially such as have been recently taken into the dairy; and it is no less so that their food should be of the best quality. It is an established fact, that a small quantity of food, well chosen, and of prime quality, is infinitely better than an abundance of such as is bad or even only indifferent.

The fodder of cows is of two kinds: dry, and green;—the former is given in the stable; the latter usually in the fields. In the former case, *a small quantity only should be given at a time*

but that the more frequently. Cows are by this means prevented from gorging themselves; and the consequences resulting from indigestion are avoided; they are also prevented from weakening their appetite, or from having a distaste for their food from too much being put at one time before them, and blowing upon it. In eating only a small quantity at a time, they ruminate much better and with more ease, whereby digestion is greatly facilitated; and not only the health and condition of the animal kept up, but an abundance of rich milk also—the certain consequence attendant upon good feeding and perfect digestion.

We have given directions as to the proper use of mangul-wurzel, and due cautions of the necessity of mixing it with hay; we shall also, as we proceed, have occasion to shew the superiority of steamed or cooked food, particularly potatoes, were that given raw, and in what manner turnips, cabbages, &c. may be given with most advantage; but there are times when all these may run short, or cannot be conveniently procured; it is also best occasionally to diversify the green food of cows, or neat cattle generally. On these several accounts, we shall state what plants may

be given green, not only with safety, but in many cases with advantage.

The plants mostly in use for this purpose are

lucerne,	sainfoin,	wild chicory,
trefoil,	colewort,	burnet.

the leaves and roots of

carrots,	rape,	pumpkin,
radish,	cabbage,	(or pompoin);

the leaves or tender twigs of

maize,	(or Indian corn),	lettuce;
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the leaves, stems, and tubercles of

potatoes,	and topinambour;
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as well as the following generally:—

prickly broom,	bistort,	pea, and
parsley,	vetches,	bean-shells,
orach,	lentils,	

in short, almost all leguminous* plants, and the greater part of garden plants, as well as those which grow in the fields after the harvest.

Young thistles produce a rich, creamy milk. The leaves and tender twigs of many kinds of

* Leguminous plants are those whose seed or fruit are enclosed in a pod, as the pea, and bean, &c.

trees, such as the

acacia,	ash,	oak,	poplar,
elm,	maple,	melon,	

and the leaves and tendrils of the vine are aliments that may be occasionally employed with advantage, but only in very small quantities.

On the borders of the sea, in times of drought and scarcity, cows or neat cattle may be fed with the different species of *Algæ* and *Fuci*, and *Cristis marines*, after the plants have been bruised and boiled in fresh water. Buck-wheat and nettles do well in the poorest land. Cows readily eat the latter, either when mixed with straw, or steeped in hot-water for a night, and given in the morning altogether, the liquor being much relished by cows;—they also produce a large quantity of milk.

When roots are given to cows, it is necessary to cut them in slices, as otherwise there is danger of their choking them—an accident that often happens. There are some mills made for this purpose, which are simple, convenient, and not expensive. It is a fact sanctioned by experience, and warranted by experiment, that roots, when cooked or boiled, are far more nourishing, and give more milk than when raw.

In several parts of England, France, Holland, Germany, Piedmont, and part of Italy, they give cooked food (by steam), and find great advantage in it. Great caution is necessary in giving the young shoots of oak, ash, elm, or other trees; either of these, when eaten too freely, are apt to bring on red water, dysentery, and other serious and even mortal diseases.

Cows should never eat green fodder that has been lying in a heap till it is become hot; not only because it is difficult of digestion, but likewise from its being liable to bring on inflammatory and putrid disorders.

Cut straw and chaff may be added occasionally, but on no account should the husk of grain be ever given, it being perfectly indigestible, and consequently dangerous. Mr. Curwin, a respectable farming gentleman, says that he fed forty milch cows, and forty oxen, occasionally with cut straw well steamed; and remarks, as a proof of its successful adoption, that they continued in very high condition; which he attributed to their warm food. He says, "The quantity of food used is but trifling; and very few of my milch cows that are not fit for the butcher, at the same time that the average of milk was be-

tween twelve and thirteen quarts upon three hundred and twenty days.

In 1798, the Bishop of Killalo, during a season of peculiar scarcity, fed his cattle upon his Lincolnshire estate, upon steamed potatoes; and notwithstanding the cattle for many miles round were generally in a deplorable state, his were in the highest condition possible, solely from the effects of the food given them. But some accident happening to the steaming apparatus, his lordship was reduced to the necessity of feeding them principally upon raw potatoes; the consequence was, they immediately fell away to a state that is hardly credible. This is a most important fact; and shews the superior advantages of cooked food, even of the same kind, over that in the raw state.

Green fodder should not be brought in or out until the sun has dissipated the dew. It would be very dangerous to give it when covered with dew, as in that state it is difficult of digestion, and very apt to ferment in the first stomach, or rumen, and blow the animal, or blast it, as it is commonly called—a disease that often proves fatal, if not very shortly relieved.

Neat cattle are very liable to be blasted when

first turned into clover, or any of the artificial grasses. They are liable to this accident from two causes—the state of the animal; and the state of the grass.

1st. The state of the animal. If it be the first time, and she have a good appetite and a strong digestive power, she will eat with great avidity, and digest quickly for some time; but at length blood will be formed in excess, and the sensorium will be oppressed. The digestive power will then flag, but the appetite will continue until the third stomach becomes distended, and incapable of performing its office. The first stomach, or rumen, will then be overloaded, and incapable of bringing up the food for rumination, in consequence of which its contents will ferment. The air which is generated by the fermentation, will so distend, or stretch the rumen, as to prevent the descent of the diaphragm, and the influx of the blood into the lungs, so that the animal becomes in danger of instant suffocation.

It seems a singular circumstance that the appetite for food should continue after the digestive function has ceased; and it may be fairly presumed, that it is a circumstance which would never happen, were we to follow nature in the

management of animals more carefully than we do. In the natural pastures, a cow would not be able to gorge herself in this manner: the great variety of herbage which nature has provided, induces them to move about, to find the herbs most agreeable to their palate, and which varies almost as much as our taste, owing, probably, to the state or wants of their bodies. When an animal that has been thus kept, is turned into a field of artificial grass, as it is termed, it is like a child in the shop of a confectioner, and eats much more than is proper; and all the evil consequences that would arise from repletion in the child, arises, but with two-fold danger, in the cow.

It has been remarked by an intelligent farmer, that if cattle are turned into a piece of clover, or vetches, when the wind is in the east, it is almost sure to blast them; for then, he says, the leaf seems withered, and hangs down. In this state, perhaps, it is tough, and less easily chewed. He advises to turn them in when the grass is a little wet with dew or rain, and not to keep them at first more than ten minutes; they are then to be taken off for about half-an-hour, and put back again for about ten minutes; after

another short interval, they are to be turned out for good.

Mr. Lawrence advises farmers to keep a digesting place for cattle; that is, a piece of short grass, where they can find but little to eat, and must consequently use sufficient exercise in getting it. This advice is very good in all cases, particularly if such cattle be turned in, as have been eating freely of the mangel-wurzel, turnip, or the artificial grasses.

The second degree in which cattle are liable to be blown, when turned into artificial grasses, depends upon the state of the grass. If it be young and tender, as when moistened with a mild dew or rain, it is easily chewed, and being as easily digested, it passes readily; but if it be withered, it becomes tough, and not being so easily chewed or thrown up for rumination, lies closer or more compact in the first stomach, or rumen; and is then, upon the slightest exciting cause, very liable to ferment. A knowledge of these circumstances should certainly lead farmers to adopt the most effectual modes of prevention: to which end, in addition to those previously mentioned, may be added, cutting the grass occasionally, and feeding the cattle from cribs in

some rough ground, or in a cow-house, or large yard. It is, however, proper to observe, that when the artificial grasses are used in this manner, they should not be cut or brought in, till the dew, if abundant, be dissipated; otherwise, the animal will eat with as great a relish as in the field, and overloading its stomach, will be just as liable to be blown or blasted. Perhaps this inconvenience would be most surely prevented by giving the cattle but a proper quantity at a time; and by spreading it out a short time, particularly of a morning when there is no sun, before it is given.

Generally speaking, neither grasses nor herbs should be cut until the flowers begin to open; as before this period they are watery, and contain less nourishment: shortly after this, they become more and more fibrous, stemmy, hard, tough, and consequently less digestible. Grasses or herbs cut too early, from having their juices more abundant, but in a raw, crude state, are very liable also to produce a diarrhœa, or looseness in the bowels.

When cattle are put into a field, it should be after the dew has dissipated. If the pasture be short, they may be left at liberty; but if it be

abundant, and consist of the artificial grasses, such as lucerne, vetches, clover, or the like, the cattle should each be confined by a rope to a picket or post fixed in the field, until they have ruminated; they are then to be fixed in another spot. This change ought to take place five or six times a day; otherwise, by allowing them a large space, and changing them only twice a day, they will be very apt to gorge themselves, or after satisfying their appetites, they will trample upon and spoil the remainder. But cows may be much benefited by being raced round the meadow three or four times, gently, when first turned in to feed.

Little and often, is a maxim which ought never to be lost sight of in feeding neat cattle, particularly milch cows. By this method they thrive better, and give more and richer milk.

It is very necessary to take cows from the pastures during the heat of a summer day; as the great heat and the stinging of flies will cause a considerable diminution of the milk. Cows should be turned into a field, or exercised in some way, every day, at all times of the year, unless the weather be very bad: during their time of exercise, their stalls should be well cleaned

out, and fresh fodder put in. When cows are kept on dry fodder, it is of importance that it should be of good quality, and dispensed to them in proper quantity; and unless those conditions be carefully observed, all other attention will be of little use. Fodder, that has been badly kept, or that has been heated, or become mouldy, or dusty; such as the sweepings of barns, is little better than the husks of grain mixed with dust, and contains little nutriment, and is productive of many disorders.

The second, or even the third crop of artificial grass, when of good quality, and cut and saved in a favourable time, appears to agree better with cattle, than the first crop, of which the stems are stronger, and more fibrous; and which are, in consequence, more difficult of digestion, and less productive of milk.

It is commonly remarked on this subject by the most experienced dairymen, that the young shoots of grass which spring up after hay-harvest, especially in or after showery weather, are particularly productive of milk. It is the same with the first shoots of grass in spring, or early in the summer. It is, however, at these periods, that cattle appear to be most liable to inflamma-

tory diseases, arising from an excess of blood. The fresh, tender shoots are eagerly eaten, and being readily digested, form an undue accumulation of blood in the system. This superfluity of blood, is, it is true, generally carried off by an effort of nature, as it is termed; or in other words, a diarrhœa, or scouring, or bloody urine, takes place; sometimes, however, its effects fall more immediately upon a vital organ, and inflammation of the brain, the heart, or the lungs, ensues; and the animal is too often lost from a want of early and sufficient bleeding.

All the plants previously mentioned as adapted for green fodder, may also be given dry; as may also the straw of barley and oats; and which, if given unthreshed, is infinitely better, more relishing, and more healthy; wheat-straw, when good and fresh, the siftings of rye, peas, beans, barley, especially when boiled, bran, chippings or raspings of bread, oil-cake, hemp-seed, beech mast, starch dregs, and brewers' grains, may be occasionally given with advantage, but not too much at a time, nor for a long continuance. One or more of these things should be occasionally mixed with boiled roots,—the mixture given in

small quantities, six or seven times a day, by which both the quality and quantity of the milk will be increased, and the trouble amply compensated.

Straw is made more palatable by mixing it with the skimming, or second crop of hay, which for this purpose should not be quite dry; but mixed with the straw by laying it layer upon layer at the time of stacking; and if sprinkled with water in which a small quantity of salt has been dissolved, it will be rendered more palatable; the sprinkling may be done at the time it is given, or, which is perhaps better, a few hours before.

It may be laid down as a rule, that when neat cattle are stinted in food, farmers lose twice as much by the loss of flesh and consequent deterioration in the value of the animal, as he can ever save in the price of the food. This remark is particularly applicable to the dairyman, even in a greater degree than to the farmer or the grazier: a cow should never be stinted, no more than overfed; for one that is well fed will keep her flesh and yield twice as much milk as two that are badly kept and stintingly fed. They

should never be suffered to gorge themselves, for in that case they produce all the disorders arising from indigestion and repletion.

Give them their food

By little, and often,—but let it be good,

is the golden rule; and if this be properly attended to, and the necessary cleanliness observed, a healthy and productive stock will be the consequent and certain result.

One thing essential to be observed in feeding, is, that neat cattle, but especially cows, should not pass too suddenly from green to dry food, or the contrary; a sudden change injures the digestive organs, and diminishes the quantity of milk: this shrinking is particularly observable when the change is from green food to that which is less succulent. In this case, therefore, as well as in changing one pasture for another, great care must be used, and perhaps this cannot be accomplished in a better way than in inuring them to the change by degrees.

During the war, when agricultural produce was high, a large sum of money was made by the sale of the following receipt for feeding neat cattle. It was recommended by Lord Somer-

ville, and many other noblemen and extensive graziers and agriculturists, as a most excellent and economical mode of feeding. But we cannot ourselves speak of it from experience, never having tried it. The receipt was sold for five guineas; and five hundred persons subscribed before the particulars were made known to any one of them.

Cut good sweet wheat-straw into lengths of about four inches, and strew it, about one inch thick, over a very clean stone, tiled, or boarded floor: sprinkle over the straw just enough clean water to damp it, and add a thin sprinkling of barley-meal, or any other good meal, upon it. Then throw over the meal twice as much sweet fresh-cut meadow-grass as you put of straw. Again, strew an inch thick of cut straw, which sprinkle with clean water, as at first; and then add, as before, a thin sprinkling of barley-meal, and fresh-cut meadow-grass. And so go on,—cut straw, water, meal, and fresh meadow-grass, till you get as much as you can use in a day.

This being done in the morning, let it lie together till the evening, when it is to be turned, and mixed together in a heap: it should be given to the cattle on the following day.

IV.—Of Water.

IMPROPER feeding is, as we have endeavoured to shew, injurious to neat cattle generally; but improper management, with respect to water, is productive of more serious consequences still; and is the chief origin of what is called among veterinary surgeons, *predisposition to disease*; in other words, the animal structure is, by mismanagement, rendered peculiarly liable to disease, and is then acted upon by the slightest cause.

Thus, a superabundance of water induces the quarter-ill, red-water, and scouring; while a smaller quantity than is proper, is often a main cause of inflammatory disorders.

Filthy or impure water should be avoided, as productive of the most serious consequences; it has been proved, beyond all doubt, that impure water given to pregnant cows is a more certain cause of abortion, or slipping of the calf, than any other, and also engenders bad udders, red-water, and scouring, and materially diminishes the quantity of the milk, and injures the quality of the butter and cheese.

Neat cattle, but particularly cows, should be watered twice a day, and in summer three times; this is the more necessary when they are kept on dry food: the water should be pure and transparent; the best of all is that which has been agitated by passing through a mill, as it is then softer, and more favourable to digestion. It is a dangerous prejudice, that muddy or stangant water is not injurious; we have just given a decided opinion on this subject, and shall in the course of our observations give several cases to support that opinion.

It is always advisable, when it can be conveniently accomplished, to pump the water intended for cattle-drink into troughs of stone or cement; the best ponds of water being liable to impurity from several causes: as one of these, it may be observed, that cattle invariably void their excrement either in the pond, or near it, immediately after drinking; and as there is generally a sloping bank to the pond, the dung must, in some degree, run down into the water, and by engendering various description of the insect and vermin race, render it impure and unwholesome.

On a farm in Gloucestershire, three successive farmers were nearly ruined from the losses they

sustained by their cattle dying, and for which they could give no reason, and of course could devise no remedy. The fourth occupant, however, a man of experience, finding in the first three years that all endeavours failed to secure him from the losses sustained by his predecessors, and thinking that possibly the water might be some cause of the evil, he fenced off his ponds, and pumped the water into troughs, to which he regularly drove his cattle to drink, morning, noon, and evening; in a short time they became healthy; no more deaths took place; and the quantity and quality of his butter and cheese were much improved.

At another place in the West of England, a piece of good grass was reserved for some cattle, they being at work on the adjoining land. They were attacked, soon after they had been turned in, with violent scouring. Supposing the grass might be the cause, they were put into another piece of pasture, where there was no water; on which account they were driven back to the former field, to drink, no suspicion being entertained that the water could in the remotest degree be the cause; it was a pond of spring water, and considered very wholesome. The

scouring, however, increased, so much so, that they became much reduced both in flesh and strength, and at last voided blood with their excrement. It was now considered essential that the water should be carefully examined, and upon a closer investigation an immense number of different kinds of reptiles were discovered therein: a considerable quantity of lime was then thrown into the pond and stirred about, when an astonishing sight presented itself—myriads of reptiles were seen coming to the surface, and leaping about to escape from the almost-boiling water. After some time, the pond was cleared out, and two or three wheelbarrows full of various kinds of reptiles were taken out of it. The pond was again filled, and after a day or two, the cattle were put back again into the field, and soon recovered from their scouring.

The water of ponds surrounded with ash-trees is often during the summer covered with the cantharis or blistering fly, which the wind blows from the leaves of the trees. These insects when swallowed with the water are certainly poisonous. This is particularly the case in France, but not so much so in England; still, the

same cause exists, though in a less degree, wherever ponds are overhung by banks of trees.

Water is rendered much softer, and produces more milk by being blanched, as it is termed; that is, by having a little bran or meal stirred into it; but water so prepared must not be kept too long, as it is apt to ferment and become sour. During the heat of summer, cows are very apt to become costive, particularly where they are kept principally on dry food; in this case it will be necessary to give them water in which bran and linseed have been boiled; and even if they are not costive it will be proper to add, occasionally, about a sixth part of a pint of vinegar to every pail of water, and especially so when the water is but of an indifferent quality, or when the weather is very hot and dry.

It is a fact, that when cattle have been accustomed to drink impure water, even the washing of a dung-heap, they will acquire a relish for it, and refuse good water, if offered to them: but the consequences arising from this practice, although not always immediate in their visible effects, are certain, and sap the very vitality of the animal's constitution.—We have stated that such a practice is a frequent cause of abortion,

and productive of various and serious diseases: and we here repeat the caution, from a conviction that no other water should ever be given to cattle than what is pure, sweet, and wholesome; and that the use of that which is impure, although used for a time with apparent impunity, will not only inevitably produce present disease, but will lay the foundation of a train of disorders which will rarely if ever be eradicated.

HINTS TO DAIRYMEN

IN THE MANAGEMENT OF MILCH COWS.

WE have already given general instructions as to the choice and management of neat cattle; we shall, therefore, in the present section confine ourselves to those remarks which are more peculiarly applicable to the dairy.

Where the routine of the dairy is properly understood, it yields a profit which makes it well worth attention; but this profit depends in a great measure on the diligence, experience, and knowledge of the dairyman. A work, therefore, which contains, among a fund of other useful

matter, practical information on the best means of insuring an abundant supply of milk, and a consequent improvement in the quality and quantity of butter and cheese, must be an useful companion: and it will be our duty to lay before him such information only as the sources from which it has been obtained, will warrant as genuine.

We have guided the dairyman in the choice of his stock; we shall therefore suppose them to be now in the stable, or cow-house; of the best formation of which we have partly treated, and shall resume the subject more in the Appendix. If they have been brought from a distant part of the country, but particularly from a different pasturage than that on which it is intended to feed them, considerable care will be necessary, and a gradual seasoning essential, until sufficiently accustomed to the change: a neglect of these precautions too often occasions a very serious loss. We cannot, on this point, do better than refer the reader to our instructions for the management of neat cattle generally, page 23.

The dairyman acts in opposition to his own interest when he does not allow his cows suf-

ficient nourishment; for it is a fact warranted by experience, that one cow properly fed will yield as much as two that are badly kept. In this case it may be depended upon, that milk is always of more value than the best cow-food—stint the one, and the short supply of the other will result as a certain and inevitable consequence. A farmer some years since, kept eighteen cows upon a common, and was often obliged to buy butter for his family. Some few years afterwards, the common was enclosed, and the same person was then able to supply his family amply with milk and butter, from the produce of four cows well kept.

Properly feeding cows, without rushing into the extreme of gorging them, must indeed be considered as the primary concern of the dairy; for such a constant daily drain upon the animal cannot be kept up without severe injury to her constitution, unless the most ample supply of food, principally of the succulent kind, be afforded: If this be not attended to, the quality and quantity of her milk will be deteriorated, and the cow herself, when dry, will be emaciated, and of little worth. Food of the more solid kind will occasionally be necessary, to sup-

port her strength, and stimulate her to precreation, which otherwise such cows are apt to be very deficient in, and frequently to miss the bull at the proper season. For this purpose, a few oats may be given once or twice a week, with good effect; but in this case, they must on no account be given whole—they *must be crushed, or bruised*, or they will inevitably produce obstruction and disease. Fine pollard, also, moistened or mashed is a nourishing food; the milch cow, however, should always have exercise, for which nothing is better than a piece of open common; and this is the more essential, when extraordinary substantial food is allowed.

Mr. White, author of the Compendium of Cattle Medicine, who is without exception, the best farrier and cattle doctor in this kingdom, was once called in by a dairyman, whose practice it was to give each of his cows half a peck of unbruised oats twice a-day. In a short time his cows, although apparently healthy, gave little milk, and were at length more or less attacked with what he (the dairyman) termed *a sort of chill*, or rather, a touch of the yellows. The cow to which Mr. White was requested to prescribe, had refused her food several times: in-

deed, she was incapable of ruminating. She appeared to be in considerable pain; her back was drawn up, she was costive, and did not appear to have voided urine. She was very restless, rose up and laid down again, threw her head round towards her belly, and attempted to strike it with one of her hind feet: her ears were cold; and her pulse high—about eighty—or ten above the natural and healthy beat. It was a well-marked, evident case of indigestion, attended with symptoms of flatulent colic, or gripes, and as such it was treated by Mr. White.—He first threw up a clyster, of five quarts of warm water in which one pound of salt was dissolved. He then prepared the following drench:

RECIPE No. 1.

Barbadoes aloes,	4 drams;
Powdered ginger,	1 dram;
Table salt,	4 ounces;
Water,	1 quart.

Into the first hornful of this mixture, he put half an ounce of tincture of opium.*

* Mr. White, it should be observed, when he afterwards used this drench, substituted two ounces of anodyne carminative tincture, in lieu of the tincture of opium.

This was the only medicine he administered. He then ordered the cow to be turned out. About three or four hours afterwards, she was drenched twice with whey. This made her rather sick; she was, therefore, turned out again, and nothing more given her. The drench soon stopped the gripes; still, there was great uneasiness, and evidently an obstruction in the third stomach;* soon after taking the whey, she dunged, and with her dung came a considerable number of oats, as unchanged in form and substance as when first taken into the stomach of the cow. She continued very restless and uneasy during the night; and was, in the dairyman's opinion, getting worse; but towards morning, she was relieved, and as the day further advanced, recovered so far as to be able to graze.

This practice, so evidently demonstrated as injurious, was shortly after abandoned by the dairyman; and a more rational and succulent description of food adopted: the consequence was, his cows soon become perfectly healthy, and more capable of yielding an abundant produce.

* For a brief account of the several stomachs of the cow, and a description of the digestive process, see a further part of our work.

This is not the only case on record, of the ill effects of feeding cows on *unbruised* oats which might be enumerated; we could add numbers of similar examples; but this one will answer every purpose, not only in shewing the method of treating a case of the kind, but to prove, likewise, the impropriety of feeding cows in any such manner. Grain, as we before stated, is used for quite a different purpose than of nourishing milch cows,—it has the very opposite effect to what the dairyman just mentioned intended,—grain promotes the formation of flesh and fat,—not of milk; and in so doing changes the disposition of the animal from that of providing for her young, to that of increasing her species.—Good milkers rarely carry an over-abundance of flesh on their bones; and it is a vain attempt to force nature,—they are seldom made fat till they are done with the dairy: but what then?—they pay as they go; and, if properly managed, they never retire in our debt.

In our observations on the foddering of neat cattle, we have given general comparisons of the merits of the various kinds of food; in our present article we shall extend these remarks so much further only as concerns the dairyman in

the keeping properly his milch cows. For this purpose, we shall divide our observations under two heads,—Summer feeding, and Winter feeding.

SUMMER FEEDING.—Natural grass is the first and best of all food for milch cows. Of the artificial grasses, lucerne is to be preferred, and green tares are a very succulent and nutritious article of food: but like all other artificial grasses, they must be used with care, giving with them a little sweet hay, or other dry food.

The most economical method of managing grass, (and it will be found particularly so, where the dairyman may have only one or two small meadows,) is to keep it constantly shut, and free from the tread of cows, and to cut the grass as soon as of sufficient length and substance, and carry it to them; no more being cut at once than can be consumed in the course of the day; the cutting being made in the morning, about an hour or two after the sun has been up. This is to continue throughout the season, and as late in Autumn as any growth can be obtained.

According to Mr. Curwen's experience, some years since, three acres of grass cut and carried, supplied thirty milch cows with two stone each, or twenty-eight pounds, during two hundred

days. This gentleman observes, that, to have supplied a similar number of cows with a like quantity for the same period, would, in the usual way of management, have required seventy-five acres of land for its production. And to have grazed such a number of cows at liberty, that length of time, must, it is obvious, have taken a very considerable number of acres.

This vast produce from so small a piece of land may at first appear very problematical; but experience and good management will soon convince the dairyman that he may realize the advantage, great as it may appear. To enable the meadow to support this exhaustion from the scythe, it should be cleared at the end of every autumn, from all kinds of weeds and rubbish, and fresh grass-seeds of the best kinds, cast upon the bare places. A coat of good rotten manure should then be allowed, consisting of all that can be collected from the household, or procured elsewhere, mixed up and augmented with virgin earth.

The garden, for we can hardly suppose that the dairy will be unaccompanied with so usual an appendage, will assist, by its superfluity, in feeding a few cows; and cabbages, cabbage

leaves, or lettuces, as a change of food, will help to force the production of milk.—But it should be recollected, that too much green food will scour a cow, and injure her constitution,—a little sweet, good hay must, therefore, be allowed daily with such food, for the purpose of preserving her in good health.

Never adopt a practice so much to be condemned, and so enfeebling, both to the health, the comfort, and the constitution of milch cows, as to keep them entirely in the house, both summer and winter,—besides, it is altogether against the interest of the dairyman to persevere in a system so objectionable in every point of view; experience—that best of teachers—will, if he give it a fair trial, convince him that exercise abroad not only tends to promote and keep in good health, but invariably assists in increasing the quantity of milk.

Cows will do well if in summer they be turned upon a common or waste, to remain, or come home at their own pleasure, being full fed, morning and evening, with cut grass; provided the constant caution be observed of allowing them shelter in the fly season; or they may lie abroad during summer nights, in a well-littered yard, or

a secure waste, a sufficiency of cut grass being at their command. If one cow be observed to drive another, and to maintain a constant mastery, let her be tied up to enable the others to feed at liberty.

Pure water is of the utmost consequence to the health and productiveness of milch cows; they should never have any other, or the most serious consequences will inevitably result. Water for cows should be pumped into stone troughs, which should be kept sweet and clean; and they should be allowed to drink moderately two or three times a day.

Dr. Jenner, who conferred that great blessing on mankind—the cow-pock inoculation—considered that giving pure water to cows was of more importance than persons are generally aware. There were farmers in his neighbourhood, whose cows, while they drank the pond water, were rarely ever free from red-water, or swelled udders; and the losses they sustained from these causes, together with the numerous abortions their cows suffered, increased to an alarming extent. One of them, at length, supposing that the water they drank had something to do with producing their disorders, sunk three

wells on different parts of the farm, and pumped the water into troughs for the cattle. His success was gratifying; the red-water soon ceased, the swelling of the udder subsided; and the produce of the renovated animals increased both in quantity and quality. The other farmers followed the same practice; and in less than six months, not a case of red water, swollen udder, or abortion, was heard of in the neighbourhood.

For WINTER FEEDING, the chief dependance is, or should be, good, sweet hay, and occasionally Swedish turnips, and sugar-loaf cabbages. Some dairymen think after-math hay, or *rowen*, as it is called, sufficiently good for winter-feed; but others whose experience leads them to adopt the most judicious plans, give their milch cows the best hay they can get; wisely reasoning, that an abundant supply of good milk is worth more than the best hay; and certain it is, that animals thus fed are very rarely deficient either in the quantity or quality of their produce. There are many nutritious and succulent vegetables, which make an excellent change, or rather mixture, with hay feeding, viz. cabbages, carrots, potatoes, yellow-beet, &c. Bruised furze-tops are also very good, and assist to make capital winter butter.

Cabbages should be given moderately; but turnips, unless of the Swedish kind, notwithstanding all that has been said to the contrary, make thin milk and poor butter. Carrots are an excellent winter-feed; so is yellow beet, and also mangel-wurzel, but this must be used cautiously, and never without sweet hay, as it is an astringent, and sometimes, if eaten of too greedily, will *hove* or *blast* milch cows.—Potatoes should always be well washed, and baked or steamed; or if ever given raw, must be washed quite clean, mashed, and mixed with good hay, or else they are very liable to bring on the scouring rot. An occasional feed of crushed or bruised oats, or fine pollard, will be very useful.—Oil-cake should never be used,—it produces greasy ill-scented butter, and has a similar effect on the flesh of the animal.

London, from the immense population it contains, has, and always will, occasion a great demand for milk:—dairy-farming, therefore, in the environs of the metropolis; is an important and generally a profitable undertaking. It has been estimated that there are upwards of 10,000 milch cows kept in the environs of the British capital, for the supply of milk alone; the high

price demanded for the land on which they are fed, on the one hand; and the ready sale of all the milk they produce, on the other, equally tending to prevent any part of it finding its way to market either in the form of butter or cheese.

In several parts of the metropolis, there are persons who keep from two or three to a dozen cows, pent up either in a cellar, or a shed at the back part of their premises: many of these animals never see a green field from the moment they are purchased by the dairyman, as their owner styles himself, to the day they are sold to the butcher; others are occasionally treated to an hour or two's crop of some neighbouring close-trodden pasture; but they are all fed on grains, mangel-wurzel, hay, and distillers' wash: the consequence is, the milk is poor in quality, and very different from the nourishing article produced by those animals who graze in the open air on the invigorating food plentifully bestowed by the liberal hand of nature.

In the environs of the metropolis, however, there are several large dairy farms, in each of which some hundred milch cows are kept. Among these, Islington, a large village, two miles north-

west of the city, has been celebrated from the earliest periods for the great supply of this nourishing article of early life which it has always produced; in this place, before the building innovations of modern times covered its extensive and luxuriant fields with new streets, connecting it even with the metropolis itself, there were a great number of dairy farms of all sizes; from the humble owner of his solitary cow, to the opulent possessor of nearly a thousand; they have now, from the loss of pasture land, nearly all merged into two, but those two are the most extensive dairy farmers near London.

The proprietors of these two dairy farms, Mr. Laycock, and Mr. Rhodes, each possess a stock of from 500 to 700 milch cows, principally of the large-sized, short-horned Holderness breed: that sort being the most esteemed for the pail. The land upon which they are fed, is principally of the meadow and pasture kind, kept in a highly productive state, and generally mown twice a year; the great quantity of excellent manure procured from the cows enabling the proprietors to give it frequent and good dressings: the hay obtained is consequently rich and nutritious; and of a soft, *grassy* quality, being cut before the

seedling stems arise,—at least three weeks before it would be advisable to do so for horse feed.

We have been favoured, from an authentic source, with an accurate account of the manner in which the principal Islington cowkeepers feed their cows; this is as follows:

The cows during the night are confined in stalls; about three o'clock in the morning each has half a bushel of grains. From four till half past six, they are milked by the retail dealers. When the milking is finished, a bushel basket of turnips is given to each cow, and soon afterwards, the tenth part of a truss of fine, soft, grassy hay. These feedings are all given before eight o'clock in the morning, at which time the cows are turned out into the farm-yard, or home-stead. At twelve o'clock, they are again confined to their stalls, and a similar quantity of grains allotted as in the morning. At half past one, the milking again commences, and lasts till about three, at which time the same quantity of turnips, and afterwards hay, is given as before. This mode of feeding continues during the whole of the turnip season, which is from September to April, or May. During the other months of the year, they are fed with grains, cabbages, and

tares, instead of turnips, with the same quantity of rowen, or second-cut meadow hay, and are continued to be fed and milked with the same regularity as before described, until they are turned out to grass; when they continue in the fields all night, and even during this season grains are given to them, which are kept sweet and palatable by being buried in deep pits for that purpose till wanted.

The calves are generally sent to Smithfield at two or three days old; when they are bought by jobbers and others to be reared, or fattened for the butcher. Those cows that give the most milk are not found, in general, sufficiently productive to be kept longer than three or four years; when they are fattened and sold to the butcher. The quantity averaged from each cow is estimated at about nine quarts per day.

Besides the keep already mentioned, the cows on these two dairy farms have a portion of distiller's wash now and then mixed with their dry provender. Their food is also occasionally varied with potatoes, and mangel-wurzel, great quantities of which are now consumed by the cow-keepers in the vicinity of the metropolis, and sometimes procured from places many miles distant.

The milk is conveyed from the cow-house in tin pails, which are carried principally by strong robust Welch girls and women, who retail the same about the streets of the metropolis. It is amazing to witness the labour and fatigue these females will undergo, and the hilarity and cheerfulness which prevail among them, and which tend greatly to lighten their very laborious employment. Even in the most inclement weather, and in the depth of winter, they arrive in parties from different parts of the metropolis by three or four o'clock in the morning, laughing and singing to the music of their empty pails: with them they return loaded to town; and the weight they are thus accustomed to carry on their yokes, for a distance of two or three miles, is sometimes from one hundred to one hundred and thirty pounds.

Milch cows should never be exposed by *night* to the inclemency of the winter season, as it chills them, lays the foundation of a train of diseases, dries up part of their milk, and keeps them backward in all beneficial respects. At any rate they should have a well littered shed, in which they may repose in comfort, and with their loins dry—a matter of great consequence to their health.

We have divided feeding under two distinct heads, summer and winter, because the subject seemed to demand it, the remarks for the one season not being so applicable to the other;—but there is an equally-important consideration, not so confined to time or season, but which is alike necessary at all times, and at all seasons,—and that is *cleanliness*. Not only must the cow-house or stable be kept clean, and well ventilated both in summer and winter, but the animal herself, if her health be a matter of consideration, must also be kept perfectly clean in every part. Upon the continent, milch cows are carefully attended to, rubbed down, and curry-combed like horses; and their general improvement, both in health and produce, well repays the trouble. We do not insist on the necessity of this extreme care; but we most earnestly intreat dairymen to rub them down, at least daily, with a wisp of hay or straw, and to be careful that in every other respect they and their stable are kept perfectly clean, sweet, and wholesome.

It is of the utmost importance in the management of a dairy, that cows should be treated with gentleness, and soothed by mild treatment,

especially when young and ticklish, or when the teats are tender, in which case the udder should be bathed with warm water before milking, and touched with a little of the best salad oil. They should then be milked with the greatest gentleness, or they will be likely to become stubborn and unruly. By some it is considered necessary always to wash the udder before milking with clean water; and there can be little doubt that this practice conduces materially to render the operation more easy to the animal.

It is the general practice to milk cows twice a day only, viz. morning and afternoon, or evening; but when they are abundantly fed with the artificial grasses, it is adviseable to milk them three times a day, viz. very early in the morning, at noon, and at night; for if only milked twice a day when liberally supplied with succulent and nutritious food, they will yield a much smaller quantity of milk in the twenty-four hours, than if milked three times. It has indeed been remarked by some attentive and experienced dairy-men, on this head, that a cow in these circumstances will give nearly as much milk at each time of milking, if milked three times, as if she were milked only twice. And it has been clearly

ascertained, that if the milk be not thoroughly drawn off at each time of milking, not only will the quantity be diminished, but the quality also will be impaired; the last milk, moreover, is always the richest, according to the remark of an experienced Cheshire dairyman—“ *Each succeeding drop which a cow gives at a meal, excels the preceding one in richness.*” The milk that is left in the udder seems to be absorbed into the system, and nature generates no more than to supply the waste of what has been taken away; and by persevering in that practice, the diminution of milk continues, until at length no milk is formed. This is the best practice when it is intended to dry up the udder.

Dr. Anderson, a gentleman who devoted much time and attention to the improvement of the dairy, made a series of experiments to determine this important question. He had ten cups, all of the same weight, size, and shape, filled at ten different intervals from one milking of a cow: the first cup contained the first of the milk; and the last, the dregs of the stroakings. The milk in the first cup was a thin blueish liquid, similar in appearance to mixed milk and water, and yielded a cream of a thin tough film; while that

in the last cup was of a thick consistence and yellow colour, more resembling cream than milk in taste, and gave cream of a thick buttery consistence, and of a glowing richness of colour that no other kind of cream is found to possess. The contents of the intermediate cups gave a similar result; the goodness and richness of the milk and cream increasing in a similar proportion.

From this important experiment it is evident, that a person who, by bad or part milking, loses but half a pint of milk at the conclusion, loses in fact as much cream as would be afforded by five or six pints at the beginning, and loses besides that part of the cream which alone can give richness and high flavour to the butter.

The same gentleman made a second experiment of a different nature, but equally important in its results; which was, to ascertain the quality of the cream thrown up at various periods from the milk; from which he proved that the first cream thrown by milk put in a dish for the purpose, was richer in quality and greater in quantity, than that which rises in a second equal portion of time; and the second more and better than the third, and so on; the cream de-

creasing in quantity, and declining in quality, so long as any rises to the surface.

The previous observations apply to dairies in which there are a dozen or more milch cows; but there are persons who keep one or two cows, to whom they are alike applicable.

Cobbett, in his "Cottage Economy,"—a work which, whatever opinions may be formed of the writer, is really useful, and contains much valuable information, recommends every cottager to keep a cow,—and gives some excellent instructions for supporting it upon the produce of *forty rods of land*. The cow he supposes to be of the small common kind, and to require about seventy or eighty pounds of good moist food in the twenty-four hours. The way in which this quantity of food is to be raised from forty rods of land, is as follows:

The ground being cleared of trees and bushes, is to be dug deeply in spring, or, which is better, to be trenched, and in April or May to be laid up in ridges made high and sharp, about two feet apart. When the weeds appear about three inches high; the ridges are to be turned into the furrows, *never moving the ground but in dry weather*: by this means the weeds will be buried.

This is to be repeated as often as the weeds rise to a similar height.

Being thus prepared, about the 26th of August, but *not earlier*, prepare a rod of your ground; put some manure into it, and sow one half of it with early York cabbage-seed, and the other half with sugar-loaf cabbage seed, both of the true sort, in little drills eight inches apart, and the seeds thin in the drills. If the plants come up at two inches apart (they should be thinned if they come up thicker) you will have plenty. As soon as fairly out of the ground, hoe the ground rather deeply; and repeat the same in a few days. Now make fine and manure another rod or two, into which prick out the plants as soon as they have six leaves, which will be in a short time. Plant them four thousand of each in rows at eight inches apart, and three inches in the row. Hoe the ground between them often, and they will grow fast, and be straight and strong. These plants so pricked out, will, most probably take four rods of ground.

Early in November, or, as the weather may permit, a little earlier or later, lay manure between the ridges in the other thirty-six rods;

turn the ridges over on this manure, and then transplant your plants on the ridges at fifteen inches apart, where they will stand the winter. If any fail, prick more out to replace them. Your thirty-six rods will thus take up your four thousand plants. If the winter be severe, you can cover your bed where your plants are, although you may not be able to cover the thirty rods of planted out. Litter, straw, dead grass, or fern, laid along between the rows and the plants, so as not to cover the plants, will preserve them completely. As often as any fail later in the winter, supply their places. If you find the ground dry at the top during the winter, hoe it, particularly near the plants, and rout out all slugs and insects. And, in March, when the ground is dry, hoe deep and well, and earth the plants up close to the lower leaves. As soon as the plants begin to grow, dig the ground with a spade clean and well, letting the spade go as nearly as possible to the plants, without displacing any of them. Give them another digging in a month; and, if weeds come in the mean time, hoe, and destroy them. By the beginning of June, you will have turned-in cabbages; and, shortly after, solid early Yorks.

It is at this time you are to purchase your cow,—of the place you are to keep her in, we shall speak by and bye. The present subject is, her food. The thirty-six rods, if the cabbages all stood till they grew solid, would yield food for two hundred days, at eighty pounds per day, which is more than she would want. At first, however, some must be used that are not solid; and afterwards some will split before you can use them. You will, therefore, have pigs, to help off with them, and to gnaw the heads of the stumps.

In March, and again in April, sow more early Yorks, and get them to be fine stout plants, as you did those in the fall. Dig up the ground, and manure it, and, as fast as you cut cabbages, plant cabbages, in the same manner, and with the same cultivation as before. Your last planting will be about the middle of August, with stout plants, and these will serve you into November.

You have now to provide from December to May, and that, too, out of the same forty rods of ground: to do this, you must have arrived at perfection by the month of November three thousand turnip plants; these, without the

greens, must weigh on an average five pounds each, and will, at eighty pounds a day, keep the cow one hundred and eighty-seven days, being five days more than there are in the six months. The greens will have helped out the latest cabbages to carry you into December; but for these six months you must depend on nothing but the Swedish turnips.

The plan you must pursue to obtain this quantity of turnips from the same ground that bears the cabbages, is simply as follows: When at your outset, you plant your cabbages, first put a row of early Yorks, then a row of sugar-loaves, and so on throughout the piece. Of course, as you are to use your early Yorks first, you will cut every other row; and the early Yorks that you are to plant in Summer will go into the intervals. By-and-bye, the sugar-loaves are cut away, and in their place will come Swedish turnips, you digging and manuring the ground as in the case of the cabbages; you will thus, at last, find nearly sixteen rods not required for cabbages, it being not only *now* too late, but also unnecessary to go further on with planting them. Here, then, the Swedish turnips will stand in rows two feet apart, and always a foot apart row

from row. The required quantity of three thousand turnips, will thus be easily obtained; and if they do not average the weight given, the fault must be either in the seed, or in your management.

These Swedish turnips are to be raised in this manner: the plants left in the *four rods* in which you sowed, and from which you pricked out, your cabbage plants, will, in April, serve your family for greens: your pig, also, (for where a cow is kept, a pig may be maintained in addition at a very trifling expence) will help you to get rid of them. In the last week of May, prepare a quarter of a rod of this ground, and sow it, precisely as directed for cabbage-seed, with Swedish turnip-seed; and sow, every third day, a quarter of a rod, till two rods are sown. The fly will sometimes appear; when this is the case, cover the rows over in the day time with the cabbage leaves, and take the leaves off at night; hoe well between the plants; and, when safe from the fly, thin them to four inches apart in the row. The two rods will yield you nearly five thousand plants. From this bed draw your plants, to transplant to the ground where your cabbages were, as before shewn. Do not begin

transplanting before the middle of July, and finish not later than the middle of August. In the two rods from whence you have drawn the turnips for transplanting, you may leave the remaining plants to come to perfection, at two feet distance each way; which will yield you eight hundred and forty pounds weight of turnips, over and above your demand, to provide for any accidental failure, or as food for the pig. The two remaining rods of the four, will be ground sufficient to sow cabbages in at the end of August, as directed for last year.

You are to observe that the turnip plants are to be transplanted just in the same manner as directed for the cabbage-plants; and that both should be transplanted in *dry* weather, and in ground but just fresh digged. Also that the turnips are to be of the Swedish kind; for the *white turnip*, which is at best but a poor root, makes miserable butter; as does also the *large cattle cabbage*; both must therefore be avoided; and the best way to do so, is, perhaps, to *follow implicitly the directions previously laid down*, not only as to the *sorts of seed* required, but also as to the *manner of their cultivation*; and then you may depend on having as sweet milk and as good

butter, as can be obtained from any cow, upon whatever she may be fed. And the only way in which your butter can imbibe any *ill taste*, is from your suffering any sluttishness in any of the dairy tackle. Churns, pans, pails, wall, floor, and all in and about the dairy, *must be kept sweet and clean*; and, above all, *the pans must be boiled*.

As, however, in spite of your best efforts, you may be deceived in the *purchase* of your turnip seed; (and if you are, all your after labour is thrown away), the best way is to get a dozen of fine turnip plants, perfect in all respects, and plant them in a situation where the smell of the blossoms of nothing of the cabbage, or rape, or turnip, or even charlock kind, can reach them. Seeds thus obtained will keep good for four years.

When the Swedish turnips are ready to take up, the tops must be cut off, if not cut off before, and also the roots; but neither roots nor tops should be cut off very close. Put as many as you can (say ten or twenty bushels) of the bulbs in the house or shed; heap up the rest upon the ground in a round form, and let it rise up to a point; putting ten bushels only in each

heap. Lay over it a little litter, straw, or dead grass, about three inches thick, and then earth over all, about six inches thick. Then cut a thin round green turf, about eighteen inches over, and with it cover the crown of the heap, to prevent the earth being washed off. These heaps, thus stored, will remain uninjured till wanted for use. When given to the cow, it will be best to wash the Swedish turnips, and cut each into two or three pieces. If in the spring, they should be found *sprouting*, open the remaining heaps, and expose them to the sun or winds; then cover them again slightly with straw or litter, and they will generally keep good till wanted for use.

The shed in which your cow is kept, should be so built, as to afford her at all times a warm comfortable lodging; the floor should be paved with stones, of some sort or other; and sloped, but not too much. A broad trough, or box, fixed up at the head of the cow, is the thing to give her food in; and she should be fed three times a day, always at daylight, at noon, and at sunset. If her shed be near a common, she will, of course, be turned out in the day time, except in very wet and severe weather; but if there is

no common near at hand, there is, most likely, a green lane, and she may be suffered to graze or pick along its sides.

According to the present practice, a miserable "*tallet*" of bad hay, is in too many cases the wretched winter sustenance of too many labourer's cows, in addition to what they can pick up from the green lanes, or road sides: this can hardly be called food; the consequence is, the cow is both dry and lousy, nearly half the year; instead of being dry only about fifteen days before calving, and being sleek and lusty at the end of the winter, to which a warm lodging greatly contributes. For, observe, if you keep a cow, at any time between September and June, *continually* out in a field or yard, to endure all chances of weather, she will not, though she have food precisely the same in quantity or quality, yield above two thirds as much as if she were lodged in her house; and in *wet* weather, she will not yield half so much. It is not so much the cold, as the wet, that is injurious to all our stock in England.

The manure required for these forty rods of land is easily obtained: at first it must be provided by collections made on the road, and by

the results of the residence in his cottage. Let any one clean out every place about his dwelling, and rake, scrape, and sweep all into a heap, and he will find he has a great deal. Every act that tends to cleanness and neatness in or about a dwelling, tends to the creating of a mass of manure. Every thing of animal or vegetable substance that goes into a house, must go out of it again, in one shape or another. The very emptying of vessels of various kinds, on a heap of common earth, makes it a heap of the best manure. Thus, for the outset; when you have a cow, your trouble of collection will be all over; you will then have ample, and especially if you have a pig. Enough will be created by these two animals, with a common degree of attention on your part to their cleanliness, for an acre of ground. And, let it be observed, that, after a time, it will be unnecessary, and would even be injurious, to manure for every crop, for that would produce more stalk and green than substantial part. You ought to depend more on the spade and the hoe, than on the dung-heap. Nevertheless, the greatest care should be taken to preserve the dung-heap. The best way to preserve manure, is to have a pit of sufficient di-

mensions close behind the cow-house and pig-stye, for the run for these to go into, and from which all runs of rain water should be kept. Into this pit would go the emptying of the shed, and of the sty, and the produce of all sweepings and cleanings round the house; and thus a large mass of manure would soon heap together, more than you will require; the residue you may exchange for straw, of which you will require one good load of rye or wheat straw, for the winter, and half a load for the summer: unless the neighbouring common will supply you with rushes, grassy furze, or fern.

Such are the excellent directions given by Cobbett, in his useful work, "Cottage Economy;" and we have only to remark, as an opinion of our own, that the addition of a little sweet, good hay, to the greens and turnips, is all that would ever be required to preserve the cow in health, strength, and flesh; and to ensure an abundant supply of good milk.

In concluding our hints to dairymen we will just add, that if he have a sufficient range of good grass land, he can, as a matter of course, best afford to keep the largest breed of cows; but if he possess but little, and that little of

ordinary quality, he had better make choice of a small stock, which will shift with a moderate bite, and are not too heavy to labour through the day to fill themselves: however, he must recollect, that the poorest heath-croppers will make but a sorry figure at the pail, without a good allowance of extra provision.

OF THE MANAGEMENT OF COWS

BEFORE, DURING, AND AFTER

CALVING.

BREEDING is an important process in the animal economy; and in most of the domestic animals it is encouraged by mankind as a source of profit.—To none can this remark be more applicable than to the cow; for not only does she produce an offspring whose worth is a matter of consequence; but she also continues to enrich her keeper by abundantly yielding her rich lactiferous store—converted by his interest from being the source of nourishment to her progeny into a source of profit to himself.

This same feeling, of making the most of the

animals in his possession, often urges the inconsiderate owner to attempt to outstrip, or rather, to force nature; but the attempt in such case recoils on himself—for instead of obtaining the daily golden egg, he too often finds his premature haste has destroyed his bird, eggs and all.

These remarks apply with greatest force to those inconsiderate persons who, anxious to anticipate their most sanguine hopes, injure their stock by putting their heifers prematurely to breed, and who, did they but endure another season of necessary delay, would give time for nature to perfect her work of maturity, and ensure a healthy offspring; but those persons, by an injurious and injudicious haste, destroy the stamina of the animal's constitution, entail a feeble and unhealthy issue, exhaust the powers of the devoted animal, and not only shorten her life, but occasion many and serious disorders.

Heifers should not on any account be put to bull before they have passed the second year of their existence; indeed if three years be allowed, the much better condition of the calves will amply repay the one year's delay.—Cows may be expected to produce a calf every year, but if an occasional year be allowed to pass without their

breeding, it will much improve their condition; as over breeding, like over-working, exhausts the powers of the animal's constitution. The general rule with regard to milch cows, is, not to put them again to bull before they cease to give milk; cows that are not in calf are generally in heat every three weeks; at which time, and at the moment they are most in heat they should be put to the bull, as they will conceive more readily.—There are cows which continue in heat only a very short time; with such this attention is the more necessary. They are known to be in heat by the following signs: they are continually lowing, and mounting each other, or upon the bull; they are restless, and often running about; there is also an elevation of the tail, a swelling of the genital parts, and a slight discharge of white glairy matter from the shape. After they have taken the bull, they should be taken away, and not brought to him again, unless they are again in heat.

There are cows that never conceive, but yet continue to be in heat about every third week; and it has been observed, that weak, flat sided cows, or such as are consumptively disposed, are often in heat again, after being bulled. Va-

rious reasons may be assigned to account for these circumstances; but as they are rather hypothetical than practical, we shall merely observe what experience has proved, that cows which are kept from breeding for several years sometimes fall into a consumption; and become thereby ever afterwards incapable of producing issue, although more and oftener inclined to receive the bull.

The cow goes nine months with calf; some give milk during the whole time; others lose it about the seventh or eighth month: it is, however, adviseable, as a general rule, to cease to milk them at seven months, unless the udder should swell; in this case only half the quantity in the udder should be drawn off, and that more from relief to the animal than from any service to which the milk can be applied; as it is now of little value, and necessary to the nourishment of the foetal calf.

Cows that are with calf should be kept in fields where the ground is nearly level, and where there are no large ditches; as abortion is often a consequence of their leaping over ditches, or slipping on very hilly or steep ground, when driven into the stable at the time the fields are

laid up, or in situations where it is necessary to employ dogs to keep them.

Pregnant cows, and especially such as are near calving, ought to be fed with better and more substantial food than usual. Grain of any kind is now useful, but *it must be bruised, or crushed*; barley and oats are the best kinds. Some good soft fragrant hay of the second crop, or skimmings, should be reserved for this purpose.

When pregnant cows are kept together in the same pasture, they should be carefully watched, as they are very apt to quarrel and hurt each other, and even to cause warping or slipping the calf.

Cows are more liable to abortion than any other domestic animal; perhaps this may result, in a great measure, from the want of exercise, the great size of the rumen, or first stomach, and the hardness of the third; it is also sometimes caused by the stomach being too much distended with improper food; straw and bad hay being very injurious, and, if not always the cause of abortion, is generally productive of difficult labour. Impure or unwholesome water, fog-grass, coarse tough grass in wet situations,

too much exposure to cold and wet, fighting with each other, and leaping over eminences or ditches, are all likely to produce abortion: too much care cannot, therefore, be used in looking after pregnant cows, in order to secure them against either of these accidents.—Above all, give them sufficient gentle exercise, treat them kindly and soothingly, and feed them with food that is easy of digestion, and which contains a good deal of nutriment in a small bulk; give it them a little at a time, and that little, often. Straw, chaff, and bad hay, afford but little nourishment, load the stomach and bowels, impede the gradual growth of the calf in the womb; and when the calf has acquired a moderate size, the pressure of a loaded stomach causes its death, and sometimes endangers the life of the mother also.

The approach of calving is known by the cow bellowing, the enlargement of the udder, the restlessness of the animal, and the falling of the flank and croup. The cow should then be constantly watched, that she may have assistance, if necessary, at the time of calving.

The most common manner in which the calf comes forth from the womb, or the natural pre-

sensation, as it is termed, is with the head and two fore-feet foremost. From the causes before noticed, however, this natural presentation is often changed; sometimes the hind legs and tail present: in either of these cases the calving may take place without assistance. But if only a single leg present itself, or the head only, or any other single part, the cow should not be left to her own unavailing efforts to expel the calf, but the veterinary surgeon or experienced dairyman should be immediately called in, to give the necessary assistance.

Never, however, be in too much haste in affording manual assistance for the delivery, as there is often mischief done by violent and ill-timed interference. Violence of any kind should indeed always be avoided: when the presentation is natural, the efforts of nature and the labour pains are generally sufficient for the expulsion of the calf; and where unnatural, more effectual service is rendered by care and prompt assistance than any kind of violence can afford. Besides, violent efforts of extraction often prove fatal to the cow, or cause a prolapsus, or falling down of the womb, and is infallibly fatal to the calf.—When the calf-bladder appears, it should

be sufficient to break it, and let the water flow out of its own accord; and then the only assistance proper is, to draw the calf very gently at those times that the labour pains are observed to be on, *but at no other period.*

It is of importance, also, to abstain from giving the cow any kind of heating drench, such as wine with sugar and nutmeg, which are often given to hasten the discharge of the after-birth; but which rather retard it by the irritation they excite: drenches should only be given when the animal appears very enfeebled, and then only by the advice of a competent judge.

If the labour be tedious, and continue for some time, unaccompanied with any other more unfavourable symptoms, it will be sufficient to give small quantities of nourishing food, such as oatmeal gruel, warm, and a little salted. Take care that there be an ample allowance of litter, that the calf may not hurt itself in falling, for cows almost always calve standing. Calving often happens in winter; it is then necessary to cover the cows, and not let them go out for some days, and especially not to expose them to cold and rain.

Cows being in a good condition during the

period they are with calf, may be considered as a presage of a fortunate delivery; it also indicates good management on the part of the proprietor, and renders any particular assistance seldom necessary. By good condition, we do not mean full of flesh, by feeding to satiety; on the contrary, we mean that healthful habit which invariably results from giving them a proper quantity of good food, such as is most easy of digestion, and which contains a sufficiency of nutriment in a small compass, and by allowing or gently urging them to moderate exercise.

Immediately after calving, the cow should have a little warm water, in which a few handfuls of meal have been stirred; when the thirst is considerable, which is often the case, a little more of this thin gruel should be given in half an hour, and repeated from time to time, taking care not to load the stomach.

It is a common practice, as soon as cows are delivered, and the umbelical cord, or naval-string is broken, to attach a small weight to it, to prevent its return into the womb. Though this is, perhaps, seldom necessary, it may, nevertheless, sometimes facilitate the expulsion of the after-birth, and prevent its being retained too long.

It may, therefore, be done, especially in feeble cows, which, when exhausted by calving, make but weak efforts for the expulsion of the after-birth or cleansings.

The after-birth, or *placenta*, is a large bladder which encloses the calf in the womb; and being a body foreign, after delivery, to the cow herself, it cannot remain without the most serious consequences to her. A quick expulsion of the after-birth, however, although very desirable, is not an essential condition of a good or natural calving. In general, when cows go their full natural time, and the delivery happens without accident, the after-birth comes away with scarcely any effort of the cow, in about from two to fifteen hours, more or less. These efforts are not always the same; they resemble labour pains in some measure, being weak at first, then gradually increasing, becoming longer and more considerable; at last, a more violent and prolonged effort than those preceding accomplishes the discharge, or cleansing, as it is termed.

When the animal is in health, the cleansing should be left entirely to nature; *and on no account, without the most positive advice, and that of an experienced person, should the hand be in-*

troduced, in order to hasten the discharge. Cases might be enumerated, where days, even a week, have passed, without the cleansing being expelled, and not the least danger result to the animal; notwithstanding that in the latter instance, the proprietor used the most earnest entreaties, that the veterinary surgeon who attended should draw it off. It is sufficient to pull the umbilical cord which hangs out of the part, gently, *whenever there is a labour pain*, but not to continue to draw it after the pain has ceased; and the force with which it is drawn should accord with, or be in proportion to, the effort which the animal makes: if it is too weak, it will be of no use, and if too violent, there is danger of breaking the cord, and losing this resource for assisting nature in the discharge of the after-birth, while, at the same time, it tends to weaken the cow. It is only when the animal appears ill and depressed, and when the natural efforts are evidently insufficient, that it becomes necessary to introduce the hand for the purpose of drawing off the after-birth; *but this must be done with great care, and should not be attempted except by an experienced person.*

It is improper to administer any heating

drench, such as that composed of urine, wine, savin, and rue, (given as cleansing drenches,) by some ignorant people, as they often excite fever and inflammation of the uterus; there are very few cases indeed in which it is at all safe to give them, nor should such ever be employed except when prescribed by an experienced veterinary practitioner. Inflammatory affections of the intestines and womb, are invariably the result of such bad management in or after calving; and if we would prevent these, we must be content to follow nature and reason, and not be always striving to force the one and outrage the other.

Gentle walking exercise, when the weather is favourable, often repeated; and brushing the body, especially the loins and under the belly, with a whisp of hay or straw, or a piece of cloth, will promote the expulsion of the after-birth.

When cows are weak, or too long in cleansing, the only thing to be given is toast and weak wine, good cider, or perry. If wine be preferred, mix it with an equal quantity of water. This toast should consist of four pints of wine and water, and about a pound and half of bread toasted: cows generally eat this freely: an infusion of two handfuls of camomile flowers in two quarts

of water, with the addition of half a pint of wine, if there appear to be occasion for it, and given as a drink every two or three hours, is sometimes given with success. Some hours after, half a pailful of warm water with a little meal or fine bran stirred into it. This blanched water, as it is termed, should be continued for five or six days, and if the cow be very weak, and there is great difficulty in restoring her, the wine or cyder toast may be given for a few days.

It is necessary, also, in such cases, to administer clysters, daily, of red wine and water, or of an infusion of camomile flowers in water. And some of the same liquor may be injected into the womb. These clysters and injections give that tone or strength to the uterus, and parts connected with it, which is required for the expulsion of the after-birth.

It is of importance not to confound the weakness which is the consequence of the exhaustion of vital power or strength with that which results from oppression only. In the former case, all the external parts are relaxed and cold; the eyes are pale, there is but little heat in the mouth and *vagina*; the muzzle is cold and moist, the pulse small and weak, and the respiration slow; in this

case, the strengthening toast and wine before-mentioned is necessary; but in the second case, on the contrary, the breath from the mouth and nostrils is hot; the eyes are red and rather fierce; the mouth hot, dry, and parched; the muzzle dry; the thirst excessive; breathing very quick; the vagina red and inflamed; the skin dry and tight; the pulse hard and quick; this is a real inflammatory fever, which can only be subdued by bleeding, cooling drinks with nitre, acidulated drinks with honey, and by emollient clysters. These are the only means that can be employed under such circumstances to promote the discharge of the after-birth. Some persons suffer the cow to eat the after-birth: this we consider an absurd custom, and best prevented.

It sometimes, but very rarely happens, that cows have two calves, which they do not bring forth at the same time, but after some interval. After the first is born, it may be known that another is in the womb, by the cow continuing very restless or agitated, looking continually round to her flanks, having labour pains, and appearing to pay little or no attention to the calf already born. If she continue a considerable time in this state, it will be necessary to assist



nature by giving the animal a pint of strong warm ale; and by irritating the nostrils with a pinch of snuff, or by tickling, so as to excite sneezing. If those means fail, the veterinary surgeon should be called in.

It sometimes happens that toward the latter end of gestation, or immediately after calving, the vagina comes out, and sometimes the womb follows it; this is generally caused by using improper force in extracting the calf, or after-birth. In this case, it is necessary to call in the aid of a person who has been accustomed to put back the parts; as it is an operation not easily performed by an inexperienced person. When the vagina only comes out, it will generally be sufficient to raise the hind part of the cow considerably, by means of litter, or otherwise, and keep the fore parts as low as they can be.

How to extract a calf when it presents in a wrong position.

FARMERS and dairymen, or other persons who have the care of milch cows, ought to be well acquainted with the manner in which a calf

should present itself, when in a natural or proper position.

When the calf is presented with the head and fore-feet first, and its back towards the cow's back, it is termed a natural position; all others are unnatural, and are attended with more or less danger both to the cow and the calf, unless immediate and skilful assistance be rendered.

Sometimes, however, this assistance may not be at hand when wanted. In this case the best that can be obtained must be resorted to. We shall, therefore, give a few of the most common wrong positions, with directions how best to avert any danger therefrom.

1.—When the waters are broke, and *only the head and one foot presented*, lay hold of the calf's head, and wait till the throes are off, then gently push it back, and rectify the other foot: It may be then extracted without danger.

2.—*If the head only present itself, and both feet are left behind*,—the head must as in the former case be pushed back with a gentle hand as soon as the throes are off, and the feet properly placed with the utmost care, or you will wound and tear the arteries.

3.—*If all the four feet be turned where the back*

ought to be, towards the top of the uterus,—in this situation it will be impossible to extract the calf until it be put in a proper position. The hind parts of the cow must be raised with straw, or with bags of that or other soft material that is soft and easy to lie on, and properly placed under her. By this means the person will be very much assisted in putting the calf in a suitable posture for extraction; afterwards wait the return of the cow's throes, and then give nature your best assistance. In operations of these kinds, every thing depends upon the management and activity of the person employed in putting the beast in a favourable position.

4.—*When the hind legs make the first appearance*,—it will be found better to extract the calf in this position with care, than to attempt to turn them.

5.—*The shoulder sometimes first presents itself*.—This is a difficult case, and requires the hand to be introduced in search for the fore legs: or the hind legs may be brought forward, if they appear most conveniently placed: but this must be left to the care and judgment of the party employed.

These are the most usual cases of unnatural

presentations: and may, with care and a little experience, be surmounted; but *when the calf is dropsical in the head*, which may be known by the largeness of that part, and the wasting away of the others, or *if it be dead, instrumental aid will then be necessary, and prompt and experienced assistance must be obtained*: it will be worse than useless, therefore, to give any directions in cases where the slightest error would be fatal, and where no other aid than that of the most experienced veterinary surgeon can be of slightest avail.

How to treat the naval-string after extraction.

WHEN the calf is taken from the cow, and been properly cleaned, either by the animal licking it, or with a clean linen cloth, let the umbilical cord or naval string be properly secured, with a ligature, in the following manner:—

Tie a waxed thread of several thicknesses, several times round the naval string, about two inches from the body; secure it with a double knot, then take a pair of scissars, and clip it off a little below the tied part. Be careful not to tie the thread so tightly, that it cut the naval

string, or it will cause an effusion of blood which may prove difficult to stop, and perhaps endanger the life of the young animal. If the animal's strength appear exhausted, the following restorative drink will be found serviceable:

RECIPE No. 2.

Peruvian bark in powder, 2 drams;

Ginger, fresh powdered, 2 drams;

Mix, and give it in half a pint of new milk.

The falling down of the calf-bed.

THIS is a complaint, or rather an accident, of frequent occurrence among cows, at the time of calving, and consists in the calf-bed being turned inside out, and falling down. It frequently proceeds from the force employed in extracting the calf in labourious parturition, and drawing away the cleansing immediately afterwards, before the womb has had time to contract, or lessen itself.

In these cases it will be proper to support the calf when just out of the shape, and then tie the naval-string a few inches from the naval, with

a little thick twine, and to let the cleansing be subsequently expelled by the throes of the beast.

We would advise the adoption of this plan in laborious parturition, where no manual force has been used.—For when a cow has once had this complaint, she is always liable, at any future period, either to slip her calf, or to a recurrence of the accident.

Cows that rise considerably on the small of the back, in the form of a curve, and begin to lower towards the tail, with the hip, rump, and sirloin for the most part straight, are the most liable to this complaint. Cows thus formed denote great weakness in those parts; and, without great care and proper management at the time of calving, are almost sure of having this complaint.

By observing the following rules, this may, generally, be prevented.

The floor or pavement of the cow-house should be made level at the time of calving; and it will be greatly to the advantage of some cows, if they be placed so that they stand *higher behind* than before for a considerable time before calving; as that position will enable them, when

down, to rise with more ease, and with less danger of straining themselves.

If the falling-down of the calf-bed be suspected, the cow ought to be carefully watched, particularly at the time of calving, and it should be prevented, as far as possible, by the means above-mentioned.

Treatment.—As soon as the falling down of the calf-bed takes place, care should be taken to have in readiness a clean sheet well-aired, to put underneath and around the calf-bed, if she lay down; or to support it, if standing; and likewise to protect it from particles of dirt, or straw adhering to it, as also from the effects of air. Then, if any portion of the cleansing adheres to the womb, it must be removed in the gentlest manner possible, lest you tear the calf-bed. Then bathe the exposed parts with diluted spirits of wine, or any kind of spirits will do, if they can be procured almost immediately; if not, it will signify very little.—As soon as the parts have been bathed, endeavour to return them to their natural position by the method following:

The calf-bed is to be raised, and the person who replaces it should clinch his hand, or have

a large sponge in it, and press gradually in the middle part of the womb, until it is returned into its proper situation. He must throw it forwards, as far as he can possibly reach, and turn his hand round to feel that it is properly replaced, and hold it there for some time; which will stimulate the womb to contract, and prevent it, in a great measure, from falling down again.

When the calf-bed is properly replaced, the following strengthening drink may be given to the animal, to assist her, and remove those violent after-pains, to which cattle in this state are particularly liable.

RECIPE No. 3.

Gentian, fresh powdered,	1 ounce;
White ginger, ditto,	1 ounce;
Aniseeds, ditto,	2 ounces;
Solid opium, cut small,	1 dram;
Treacle,	4 table spoonsful.

Pour a quart of hot ale upon the ingredients, in a pitcher; and give it to the cow when new-milk-warm.

This drink should be repeated once a day, or every other day, for two or three times. Warm

mashes, and proper management, must strictly be attended to.

Abortion, or slipping of the calf.

Abortion, or slinking or slipping the calf, is a misfortune to which cows are particularly subject, in the early periods of gestation; and occasions not only a serious loss to the owner, but produces a weakness in the cow herself, which is often injurious to her constitution to the latest period of her existence.

Some few of the causes to which slipping the calf is generally attributable, have been already given; we shall add one or two more, equally productive of this misfortune. Cows are most liable to slink their calves towards the latter end of the year, while feeding on fog, or autumnal grass, or on low marsh and fenny ground. In such situations, the air towards the end of autumn becomes too moist for the right performance of the animal functions; the body in consequence becomes relaxed and debilitated, the perspiration diminished, and the blood watery, which frequently produce a preternatural determination of blood to the calf-bed, that impairs

the healthy actions of that organ, and occasions abortion. It appears to originate, in these instances, from the same causes as the red water does; only in the one, the calf-bed is affected; in the other, the kidneys.

At other times, it has proceeded from the smell of carrion, either exposed on the pasture, or buried too slightly in the earth.—The sense of smelling in horned cattle is remarkably acute; any very disagreeable scent annoys them sadly, and, if it be not removed, will produce abortion.

Treatment.—Cows that are in danger of slipping their young, should be taken from the pasture or stable the over night, and from two to three or four quarts of blood should be taken from each beast, which, unless the weather be damp, ought to stand in the open yard, or open shed, till next morning: then give the following purging drink:

RECIPE No. 4.

Epsom salts,	1 pound;
Nitre,	2 ounces;
Ginger and aniseeds, in powder,	1 ounce, each;
Treacle,	4 ounces;

Pour three pints of boiling water upon the ingredients, and give when new-milk warm.

After it has operated, give her the following:

RECIPE No. 5.

Alum, in powder,	4 ounces;
Nitre,	1 ounce;
Grains of paradise, and aniseeds, fresh powdered,	1 ounce each;
Solid opium, cut small,	$\frac{1}{2}$ a dram;
Treacle,	4 tablespoonsful.

Mix for one drink.

Put the drink in a pitcher, and pour a quart of boiling water on it; cover it down till new-milk warm, and then give it the beast.

Repeat this in about eight or ten days, and there is little doubt of its producing the desired effect.

Some cows are constantly a bulling every two or three weeks, during summer: a better drink cannot be given to put a stop to this than No. 2, and also to make her hold to the bull. It should be given to her about two hours after bulling: it strengthens and braces the parts of generation: if she be in good condition, let two quarts of blood be taken from her.

If a cow should slip her calf, separate her immediately from the herd, or she may possibly affect them; and give her the following drink:

RECIPE No. 6.

Spermaceti,	2 ounces;
Spirits of turpentine,	1 ounce;
The yolk of	one egg:

Beat them in a marble mortar till well incorporated;
then add

Grains of paradise, and car- raway seeds, fresh powdered,	1 ounce, each;
Treacle,	4 ounces:

Mix the whole in a quart of warm gruel, add a wine-
glass full of gin, and give it new-milk warm.

Repeat this drink every third day for about
three times.

ON THE

MANAGEMENT OF YOUNG CALVES,

AND THE

TREATMENT OF COWS AFTER DELIVERY.

CARE should be taken that the cow, after the
extraction of the calf, should have a suitable
place to lie down in; and one that will also easily
enable her to lick her calf, which not only the
better excites her maternal feelings, but the

friction of her tongue puts the young animal in motion, and enables it to rise much sooner than it otherwise would. If she should shew any aversion to this action, which she should, and generally does, do very shortly after calving, it will be necessary to sprinkle on the calf a little salt, rubbed up with crumb of bread, or bran.

It is a prejudice very generally entertained, that the first milk is injurious to the calf, on account of its supposed bad quality. This is acting contrary to nature, which has provided at first serous and yellowish milk, termed beestings, of a laxative or opening quality, in order to carry off from the stomach and bowels of the calf an injurious dark, viscid matter, termed *meconium*, which has collected in them while in the womb. It is therefore essential that the calf have instant and free access to the cow. If the calf does not readily take the teat, put it into its mouth: but do this gently and with great care.

If, however, the first milk of the cow should not produce the desired evacuation from the bowels of the calf, recourse must be had to medicine: the following will be suitable for this purpose:

RECIPE No. 7.

Castor oil	1 ounce;
Prepared kali,	$\frac{1}{2}$ a dram;
Ginger, in powder,	1 tea spoonful;

Mix, and give it in half a pint of warm milk.

This drink may be repeated the next day, if the bowels are not sufficiently open.

The diet and treatment of cows, at the time of calving, must be regulated according to the season of the year. It is, however, considered of consequence to the dairy, that cows should not drop their young too early in the season; as when that happens, they fall off their milk in the autumn, when from its superior richness it is more valuable than at any other time. From the end of March to the end of April is considered the best time in the northern districts; as the cow soon gets into condition upon the early grass, and yields a greater quantity of milk in the course of the season than those that calve either much earlier or later; but in the southern parts, the advantage is found in calving much earlier. But as nature will not always be confined by any rule which man can lay down, he must act accordingly.

If it be in winter, or early in the spring, they should be housed as soon as possible; for new-born calves are particularly fearful of cold, and must be guarded from its intensity; not to the degree of confining them in close, hot stables, and injuring them by the reverse of too much heat. Warm water, and meshes of scalded bran, mixed with a little *ground corn*, should also be given to the cow, twice or three times a day.

If the calving be in summer, the cow and calf require to be kept under a shade, where they can be protected from the sun in the day, from the cold in the evening, and from damps and fogs at all times; and the cow must be treated with meshes and warm water, for two or three days, the same as in winter, but will not require so many of them.

If the calf be intended for the butcher, it may be taken from the cow after about a week or ten days, and fed the remainder of the time by hand as hereafter directed; but this time of taking the calf away must be determined by the state of the cow's udder; for unless that be free from kernels and indurations, the calf must be allowed to suck, as the jolting of its head is the means of healing or restoring the udder, and preventing the down-

fall, or inflammation in this part, which might cause much trouble, and even endanger the life of the cow.

But if the calf is intended to be reared, it should not be weaned until at least six weeks or even two months old, whether male or female. For such, there is no food like the cow's milk; and if she does not yield a sufficient quantity, that of another ought to be had recourse to. It is an incontrovertable fact, that the longer a calf sucks, not only the larger and stronger will it become, but it will also acquire a much better form, and more robust health.

Calves which come early should be preferred for rearing. Those which come late, do not acquire sufficient strength to bear the cold of winter: they languish, and are reared with difficulty. Calves should not be weaned too suddenly, but by little and little. The less they are able to eat, the more they should be allowed to suck; or after awhile they may be brought to take it from the pail. This is done by placing the hand in the milk, with the palm upwards, and under the milk, while the fingers are raised above the surface of the milk for the calf, to lay

hold of with its mouth, which it does very readily, and sucks up the milk with great ease.

When they are completely taken away, they should be fed with a little bran, and some of the best soft fragrant hay of the second crop; they should be allowed plenty of the skimmed milk, and now and then a little water, in which barley has been boiled and broken up, or a little buttermilk, occasionally. There is at first some difficulty in bringing them to drink, but a little perseverance will accustom them to it.

Moderate warmth and *dry lodging* are of the utmost consequence to young calves; and if we would turn them to any good account, they must not be stinted either in these or in their food. Some persons feed calves that have been weaned, only twice or thrice a day: this is not enough: give less at a time, but more frequently; and take care that they have enough. In summer, skimmed milk, thickened with oat or wheatmeal; and in winter, carrots, or Swedish turnips, sliced, will make them excellent food, adding at all times a little good sweet hay.

As soon soon as they are fit to follow the mother, let them out; nothing does them more good than exercise, and there is nothing, per-

haps, more injurious than keeping them too long in a stable.

Calves that acquire a habit of sucking themselves, may be prevented by separating them.—This is the only effectual method.—They sometimes also contract a habit of licking themselves, and swallowing the hair, which forms balls in their stomach; and, being indigestible, are the cause of many serious diseases.—Of these habits they must be broken; or they will, in spite of the best care and keep, lose flesh, become covered with lice, and subject to worms, as well as to a disease similar to farcy.

Calves cannot be kept too clean, or have fresh litter too often; for besides the evils already mentioned, if they are suffered to lie on their own dung and urine, they will become mangy, and scarcely ever thrive.—They are subject to several disorders, as the diarrhœa, or dysentary, costiveness, hoose, &c. but these we shall describe in their proper place. As a means, however, of preventing the greater number of these diseases, we would advise the adoption of a few simple but useful rules.

- 1st.—Let the young calf suck the first milk.—
This will cleanse its bowels, and prevent costiveness.
- 2nd.—Let it suck from the mother at least two months before it is weaned, and then wean it gradually.
- 3rd.—Let its first food be such as is easy of digestion, and let it have plenty of sweet skimmed milk and good hay.
- 4th.—Keep it very clean, well rubbing it occasionally with a whisp of hay or straw.
- 5th.—Keep its stable clean, and perfectly free from all impurities.
- 6th.—Let it have gentle exercise; the best will be in following the mother in the meadow or pasture.
- 7th.—Do not stint it, either in good food or good drink, and change its litter often enough to keep it clean, sweet, and dry.

DISEASES**TO WHICH CALVES ARE SUBJECT.**

It is an observation founded on experience, that calves born in the open air, suffer much less from weakness or illness, than those that are kept, from the moment of their birth, in closely confined barns, or sheds. Those brought up by hand are also much more delicate than those which are allowed to suck and follow their mothers. Calves and lambs require exercise and fresh air; and where they are not restrained, nature directs them to take a great deal; and it is surprising to see how long a calf will run about, and with what vigour it plays and frisks, if left at liberty. Free, unconstrained, and plentiful exercise, out of doors, evidently makes them thrive, and, indeed, seems essential to their very existence.

Where the cow is much weakened in calving, or long in giving milk, or if the weather be cold, it will be necessary to warm a little before the fire in a pan until it is about blood warm, and then to give it in this state to the calf, a little at

a time; about a pint and a half, four times in every twenty-four hours. If cold milk be given to a calf, it occasions a trembling; and the cords, or some other malady, inevitably succeed.

Calves are subject to several disorders during the time of sucking, when weaning, or while they are fattening for the butcher. These disorders, or rather symptoms, have obtained different names, as cords, diarrhœa, costiveness, &c. but they are really evidence of one disorder only—indigestion.

I.—Cords.

Cause.—Calves sometimes are of a sickly or weak constitution, *and require care as to the quantity of milk they take at each time*; for if they exceed a proper quantity, their stomachs become disordered; and the acid formed on the stomach for the purpose of effecting a change in the milk necessary to digestion and the formation of chyle, is increased in quantity, and altered in quality. In consequence of this, the milk, instead of being changed very gradually, is coagulated, and large indigestible curds are formed from it. This produces almost all the early disorders of calves.

Symptoms.—Extreme weakness, disrelish of food, sometimes accompanied with griping pains. When the disorder has arrived at a certain height, the muscles are affected with spasms, and drawn into *cords*, as it is termed; that is, they contract with violence, and feel hard and knotted in several parts. These cords frequently remain in the stomach a considerable time, and are sometimes so compressed, as to be absolutely formed into cheese, perfectly solid, and smelling like new cheese, a little sourish. Hence arises the obstinate costiveness. Flatulency now takes place, the calf becomes blown up, and affected with flatulent colic. This, if not checked, resolves into confirmed diarrhoea, and terminates in inflammation, from which death generally ensues.

Cure.—First attack the morbid acidity in the stomach. This is to be done by the following medicine:

RECIPE No. 8.

Unslaked lime, a piece the size of a pigeon's egg;
Water, sufficient to slake it;
Boiling water, one pint;
Subcarbonate of potash, (salt of tartar,) two
 ounces:

Put the lime into a jug with a cover, pour cold water on it; when slaked add the boiling water, stir it up, and cover it up close.

Into an eight ounce (or half-pint) bottle, put the subcarbonate of potash, and fill it up with the lime-water, having first shaken the jug so that it may be a little thick. Keep the bottle well corked, and mark it "*Solution of Potash.*"

This is the best thing that can be given for correcting the acidity of the stomach. Let it be administered in the following manner:

RECIPE No. 9.

Solution of potash (as above) two teaspoonsful;
Epsom salts, two ounces;
Thin gruel, or warm water, half a pint.

Dissolve the salts in the gruel, or water; add the solution of potash, and give it daily, until the curd is carried from the stomach, and the acidity destroyed.

If the disorder be accompanied with griping pains, give with it *one* of the following cordials:

RECIPE No. 10.

Tincture of opium, . a tea-spoonful;
Brandy a table-spoonful;

Or, Anodyne carminative tincture, a table-spoonful.

This will very soon relieve the griping pains, without preventing the laxative from operating. When the calf is relieved, feed it carefully for a few days; and if its bowels be loose, gruel made of arrow-root, or fine wheaten flour, should be given with a little of the solution of potash, or powdered chalk, in each feed. This should be left off gradually.

Remarks.—Calves brought up by hand, even if not of delicate, weak constitutions, are liable to all these affections, merely from being improperly fed, that is, from having too much milk at a time, from that milk not being sufficiently fresh, or being in a bad state from a disordered stomach of the cow, she being fed on bad hay or stale grains. An intimate connexion exists between the udder and the cow's stomach, and the milk is very liable to become altered in quality as well as quantity, by feeding her upon bad hay: we cannot, therefore, wonder at this. There is an acid formed in the stomach of the cow, and of all animals, when that organ is weakened in a certain degree, which by irritating the fourth stomach, will disorder one or more of the quarters of the udder, and spoil the milk in that

quarter. To cure these disorders, is one thing, and requires much trouble; to prevent them, another, of less trouble, but of infinitely more importance. The prevention, then, is simply, good, wholesome food, and pure water. In Scotland, particularly, where there is but little grass, and plenty of bad hay, this disease has at times been very prevalent, and proved very destructive.

II.—*Diarrhœa, or Dysentery.*

This disease attacks young calves from the age of two to six weeks old; it makes them thin, and sometimes settles into a dysentery, which often terminates fatally.

Cause.—Change of diet, particularly when stinted in good food; some careful housewives being so thrifty as not to allow them a sufficiency of proper subsistence, which nature requires at so early an age.

Symptoms.—Great weakness; loathing of food; with continual purging: every thing taken into the stomach acidifies, or becomes sour, and coagulates therein. In the last stage of the di-

sease, the stools become fetid and bloody; a large portion of the defensive mucus of the intestines is mixed with them; if unchecked, a gangrene or mortification ensues, and terminates in the death of the animal.

Remedy.—Give, in a little gruel, the following:

RECIPE No. 11.

Tincture of rhubarb,	one tablespoonful;
Laudanum,	one teaspoonful.

Or,

RECIPE No. 12.

Dover's powders,	two scruples;
Compound cinnamon powder,	three scruples;
Prepared chalk,	two drams.

Mix for one drink, and give it morning and evening, as long as the purging continues.

If there be a continual motion to dung, add to this a teaspoonful of laudanum; or,

RECIPE No. 13.

New-laid eggs, with their shells,	two;
Milk,	one pint.

Mix, and give it new-milk-warm, two or three times a day, until the scouring ceases.

If these means fail, an ounce of diascordium electuary should be given every morning; and if, notwithstanding all that you have done, the excrement becomes bloody and fetid, give one of the following, every morning, for a few days:—

RECIPE No. 14.

Diascordium electuary,	one ounce;
Good red wine	a wine-glass full,

Or,

RECIPE No. 15.

Diascordium electuary,	one ounce;
Elder-flower water,	a wine-glassful;
Crude sal-ammoniac,	half a dram.

Dissolve the sal-ammoniac in the elder-flower water, and then add the electuary; mix, and give.

If feverish symptoms accompany or appear in this complaint, or if the calf lie down, kick at its belly, and appear in pain, take away half a pint of blood, or more, if the age of the calf

will allow it, and give the following purgative, with a teaspoonful of laudanum therein.

RECIPE No. 16.

Glauber salts,	three ounces;
Powdered ginger,	half an ounce;
Aniseeds, fresh powdered,	half an ounce;
Treacle	two tablepoonsful.

Put the whole into a pitcher, and pour upon it a pint of boiling water; cover it down, and give it when new-milk warm. This is sufficient for a calf about six weeks old.

Remarks.—The time of change of diet with calves is a critical and trying period; care should, therefore, be taken to change it very little for the first fortnight; and in every subsequent change to inure it by degrees; or a dysentary may be expected, which, if not timely checked, will inevitably prove fatal.

III.—*Costiveness, or Obstruction in the Bowels.*

CALVES are liable to this complaint from the first moment of their birth; and also at every

subsequent stage; in every one of which its life is in danger, unless timely relief be given.

Cause.—Not allowing the calf to suck the first milk from the mother; or the mother being fed upon too dry meat, will induce this complaint in the first few weeks of the calf's existence; but in a more advanced age, it may result from improper feeding, exposure to damp, change of diet, or labouring under some latent internal disease.

Symptoms.—In very young calves, not being able to dung, or even sometimes to void urine; they cease to suck, stamp with their hind feet, become short-breathed, and generally die in a short time. In older calves, nearly the same symptoms occur; which, if not timely checked, resolve into inflammation, the complaint becomes more serious, and terminates fatally.

Remedy.—If the calf be very young, draw the dung out of the fundament with the finger, the finger being first oiled, and introduced carefully, and the hard excrement taken out gradually: when this has been done, one or two clysters should be thrown up, composed of infusion of

mallows or camomile,* and a little sweet oil. If this be not effectual, the previous purgative drink, No. 16, may be given at twice, half the quantity prescribed at each time, morning and evening. Of course, if the calf be six weeks old, it may be given as there directed, at once; but if it be eight weeks old, then the following should be given:—

RECIPE No. 17.

Glauber salts,	four ounces;
Rhubarb, powdered,	two drams;
Ginger, carraway, and aniseed	} of each { one-third of an ounce;
Treacle,	
	three tablepoonsful.

Put the whole into a pitcher, pour a pint of boiling water upon the ingredients, and give when new-milk warm.

* Infusion of camomile, or of other herbs, is made in the same way as you make tea, merely by pouring boiling water on the herb, and suffering it to stand awhile, covered closely, to extract the principal strength of the herb. If the quantity be more than the tea-pot will contain, a clean jug will answer the same purpose, the top being covered over with a doubled cloth. When the infusion cools to about new-milk warmth, it may be poured off for use.

If the case be inflammatory, then the following may be substituted:—

RECIPE No. 18.

Castor oil,	four ounces;
Rhubarb, powdered,	two drams;
Prepared kali,	one dram;
Ginger, fresh powdered	a quarter of an ounce;
Aniseeds, fresh powdered,	a quarter of an ounce;
Treacle,	two table-spoonsful.

Mix, and give it in a pint of warm gruel.

In a more advanced age, the salts or the castor oil should be increased; the other ingredients may remain the same.

After purging give the following cordial drink, which will not only invigorate the system, but produce a healthful tendency in the blood.

RECIPE No. 19.

Aniseeds, fresh powdered	one ounce;
Carraway-seeds, ditto	one ounce;
Coriander-seeds, ditto	half an ounce;
Ginger, ditto	half an ounce;
Grains of paradise, ditto	half an ounce;
Treacle,	two table-spoonsful;
Fresh butter,	a lump the size of a walnut:

Put the ingredients into a pitcher, and pour upon them a pint of boiling ale. Cover all down till new-milk warm, and then give it.

This will be found an excellent drink to remove indisposition and flatulency in the stomach; it also strengthens the stomach, and by promoting the digestive process—the best method of preserving health in young animals—restores the appetite, and secures health.

IV.—*Hoose, or Cough.*

Cause.—Exposure to cold, moist atmosphere, or an insufficiency of wholesome food. It generally attacks young calves during the first year; is not very difficult to cure, if attended to early; but if neglected at this period, almost invariably terminates fatally.

Symptoms.—A continual ticklish sensation in the throat, caused by very small worms being engendered in the branches of the windpipe, and clustering together in a thick, whitish fluid, cause the young animal to be in an almost constant

state of hoosing or coughing; by which the digestive powers become so much impaired, as to render the chewing of the cud impracticable: if this disorder be not subdued by proper medicines, the animal languishes and pines away, as if in a consumption.

Remedy.—The following ball and drink will, if early administered, generally remove this complaint.

RECIPE No. 20.

Calomel,	eight to twelve grains;
Gentian, in powder,	two drams;
Syrup,	enough to make it into a ball.

Give it in the morning, fasting, and let the calf be kept from food for two hours: half a pint of gruel should be administered at the time of giving the ball, to wash it down.

If the hoosing continue, repeat the ball in about four or five days. After each ball, give the following purgative drink:

RECIPE No. 21.

Epsom salts,	four ounces;
Ginger, in powder,	two drams;

Pour a pint of boiling water upon these, and give it when new-milk warm.

The following is also an excellent drench, which may be poured into the calf's nostrils.

RECIPE No. 22.

Oil of turpentine,	a table-spoonful;
Sweet oil,	a tea-spoonful;
Warm water,	a quarter of a pint.

V.—*Canker in the Mouth.*

Cause.—Heat of the body, induced probably by costiveness; and, like most other disorders to which calves are subject, it arises from improper food, or that which is not easy of digestion.

Symptoms.—The mouth is so affected, that the young calf cannot eat properly. The inside of the checks and gums are tender, red, and ulcerated, and the teeth loose. It is sometimes accompanied with fever, and then internal remedies must be applied.

Remedy.—The following mixture is generally a cure for this complaint:

RECIPE No. 23.

Burnt alum,	half an ounce;
Roch alum,	half an ounce;
Common salt,	half an ounce;
Armenian bole, in powder,	half an ounce;
Honey,	two ounces.

Pour a pint and a half of hot vinegar upon these ingredients in a covered jar: close it down, and when cold, put it into a bottle for use.

The mouth must be well washed, two or three times a day, with this mixture, in the following manner:—round one end of a cane or stick, two feet long, fold a small lump of linen, or fine tow: secure it well with strong thread: then shake the bottle well: pour some of the mixture into a pot; dip the end of the cane or stick into the gargle mixture, and apply it all over the mouth.

If feverish symptoms appear, administer the purgative drink, No. 16, page 139; and, after that has operated, give the cordial drink, No. 19, page 142; and repeat if necessary.

IV.—*Inflammatory Disorders.*

Cause.—Though indigestion, from improper feeding, is the cause of most of the disorders of calves, yet sometimes they thrive too quickly, or form so much blood, as to be attacked with inflammatory complaints. This is not often the case during the time they are fed on milk, but frequently when about one year old.

Symptoms.—Heaviness, hanging of the head and ears, watery eyes, cough, loss of appetite, and quick and difficult breathing, or rather wheezing.

Remedy.—Bleed freely, even to fainting, and afterwards give the following saline draught:

RECIPE No. 24.

Epsom salts,	six ounces;
Water,	one quart.

Mix, and give it either at once or twice, according to the age or constitution of the calf.

This may be repeated, if necessary; and if

the costiveness be not removed, give the following clyster:

RECIPE No. 25.

Table salt,	four ounces;
Warm water,	two quarts.

Observations.—When calves are about a year old, great care must be taken to prevent these inflammatory diseases, by keeping them on the barer pastures. This is more effectual than all the medicinal preventives. Thousands of calves have been destroyed by forcing them, as it is termed; that is, by keeping them too well. Moderation in food is particularly essential. Writers on cattle medicine generally recommend drenching and bleeding, when young stock are turned into good pasture: this is very good advice; but we will give better—*keep them out of it*; for certainly prevention is much better than cure. Neat cattle at all ages, are, from going too suddenly into good pastures, very susceptible of inflammation; and calves in particular suffer from too hasty a change. They require good feeding, but that feeding must be of the *nutritious*, rather than of the *succulent*, kind.

We have thus been very explicit in the treatment and disorders of calves, because we consider that, by care and attention in their early days, a good constitution may be secured, and the greater part of the disorders which affect their more mature years, altogether prevented. Before we close this part of our subject, however, we have one more remark to make on the treatment of the cow after calving:—

Some cows, from an abundance of milk, are liable to a swelling of the udder after calving. It is necessary, in such cases, to draw off the milk several times a day, if the calf does not suck a sufficient quantity, and wash the udder with warm water, or with a decoction of marsh-mallows. These means are generally sufficient; and there is no danger of their causing inflammation and abscess—diseases which require considerable time and trouble to cure, and which are oftentimes brought on by the application of butter, lard, or some rancid ointment; which are too generally the applications made use of on this occasion.

OF THE
INTERNAL STRUCTURE OF THE COW,
AND THE ECONOMY OF THE
DIGESTIVE SYSTEM.

IN the brief outline we are about to give of the internal structure of neat cattle, we shall not enter into an anatomical dissertation; but merely describe so much of the digestive system as will enable the reader to comprehend the ruminating process; by which means he will not only be the better qualified to prevent many complaints to which neat cattle are subject from improper treatment, but he will also be the better enabled to understand the symptoms of the complaints with which they may be attacked, and to adopt, with greater probabilities of success, the prescribed methods of cure.

Neat cattle belong to the ruminating tribe of animals; that is, they masticate or chew their food a second time, and then in a more perfect manner; thereby obtaining from it every possible particle of nourishment. For this purpose they are furnished with four distinct stomachs,

into which their food passes in the several stages of digestion. These will be more fully explained.

When neat cattle first swallow their food, it passes down their throats in very coarse and large mouthfuls; when they have taken enough in this state, they lie down to ruminate, or, as it is termed, to chew the cud at their ease. To render this process easily to be understood, we shall briefly describe the four several stomachs.

The first stomach, called the *rumen*, or paunch, is a very large receptacle for the food, where it is retained until the animal ruminates. There is a place in the paunch contiguous to where it joins the second stomach, which seems to act as a valve, and prevent the escape of air during the maceration of food in it. It is to this stomach that the food passes on being first swallowed by the cow.

The second stomach, called the *honey-comb*, or bonnet, is much smaller than the paunch, and in its internal structure resembles that of the honey-comb; from whence it takes its name. It is situated rather to the right side of the gullet, near to the midriff, or skirt, and on the upper and fore part of the paunch. The honey-

comb is internally covered with a sort of network, which seems to act as a grate or strainer to keep back any hard or foreign bodies that may have been swallowed; pins, nails, and bits of wood and stick, having been found therein, entangled in the grate-like entrapment. This stomach seems designed as a receptacle for the more fluid parts of the food, as well as to moisten and press on the ruminated morsel in its progress to the third stomach.

The third stomach, termed *manyplies*, or *manifolds*, is situated on the upper and right side of the paunch, and is generally found filled with food. It then approaches in shape to the globular form; but after a fast of twenty-four hours, or more, bears more resemblance to that of a kidney. This part of the system may be considered as a strong muscular bag, supplied internally with numerous leaves, from whence it derives its name, and between which the food passes to undergo a further preparation.

The fourth and last stomach, called the *maw*, resembles the pouch of a bagpipe in form, with its right and smaller extremity connected with the intestine. It is in this *maw* that the digestive process is completed—the former three

being only preparatory. This stomach is very capacious, being thrown into large plaits or folds, from whence a peculiar fluid, called the *gastric juice*, is secreted, which mingling with the ruminated food, converts it into a substance which then takes the name of *chyme*: this *chyme* is conveyed into the smaller intestines, and in its passage yields the nutritive principle necessary for the sustenance of the animal. The fourth stomach derives, from the gastric juice, the property of curdling milk: the maw of calves, when dried, is called rennet.

The *digestive process* is that change which the food undergoes in the four stomachs and intestines, and by which a fluid is separated from it for the nourishment and growth of the body.

Grass, hay, or any other kind of food that the animal eats, passes directly, without much chewing, into the paunch, where it is retained until a sufficient quantity be collected. The food, while in the paunch, mixes with a fluid secreted in this receptacle, in which it is macerated, and thereby undergoes a peculiar change, which destroys its texture, and converts it into a pulpy mass.

When the animal lies down to ruminate, or

chew the cud, as it is termed, the paunch contracts, and by that action propels some of its contents into the honey-comb, and from thence a portion of it is transmitted, by a voluntary act of the beast, through the gullet into the mouth, to be more intimately mixed with the saliva, and more perfectly masticated by the grinders.

The beast having chewed the cud, swallows it, and it now passes into the maniplies, to be reduced to a still finer pulp, and incorporated with the fluid secreted in that stomach. The alimentary mass is gradually pressed from the manyplies into the true digesting stomach, the maw, in which it undergoes a change that is absolutely necessary to the separation of the nutritious part from it. The food, after being detained some time in the maw for this purpose, is expelled into the intestines, and in them the digestive process is completed.

In the intestines it becomes intimately mixed with the bile and other secretions, which produce a further decomposition in it, the result of which is the separation of the nutritious from the excrementitious part, which action is going on throughout the long track of the intestinal gut, or canal.

The nutritious fluid extracted from the food, is of a white, or milk-like colour, and is termed *chyle*. This chyle is taken up by myriads of minute vessels, and conveyed at length to the left jugular vein, and there it mixes with the mass of blood to supply that waste which the body is continually sustaining from the necessary actions of life; while the excrementitious part is propelled along the intestinal canal, and at last expelled the body.

The Udder.

The connexion subsisting between the fourth stomach and the udder of the cow, is so intimately blended, that the one cannot be affected without the other being materially influenced: hence we may see the necessity there is of feeding cattle properly and in attending to their health, if we would avail ourselves of the profit to be derived from their produce.

If we examine the udder of a milch cow, we shall find it composed of cells of different sizes, becoming larger as they approach the teats. In a cow that has had several calves, we find two large veins proceeding from the udder, and passing up under the belly. These are remarkably

large, when the udder is full of milk, and are commonly called *the milk veins* by dairymen. In consequence of the fourth stomach being so intimately connected with the udder, it partakes of its sympathies, and is affected by whatever disarranges that part of the system; so that if the fourth stomach be disordered, the milk in one or more of the quarters will be spoiled.

The udder consists of four quarters, or divisions, each having an excretory duct, or teat, at the extremity of which there is a contrivance for confining the milk, but in a limited degree; for if the milk be suffered to accumulate in the udder by neglecting to milk at the proper time, it will at length force its way, but imperfectly, through the teat, and be seen passing off in drops or in a small stream. This voluntary act of nature, is, however, a source of pain and injury to the cow; and should be prevented by timely assistance.

OF
THE DISORDERS
TO WHICH
NEAT CATTLE ARE SUBJECT;
WITH THE
CAUSES, SYMPTOMS, AND METHODS OF CURE.

Observations.

THE works which have hitherto appeared on this important subject, have generally described the diseases of neat cattle under so many (and sometimes such very absurd) names, as to induce the belief that they were both numerous and complicated.—The truth is, however, that they are very few in number, and a knowledge of them is not at all difficult to acquire. We may, indeed describe the whole of them under two or three heads,—viz. those resulting from indigestion; those consequent upon over-feeding; and those attendant upon repletion of the blood-vessels. Of course, we are considering internal disorders only; for if we include wounds and similar accidents, we must extend our list to a fourth-class.

The two first are, however, almost alike in character, and may indeed be referred to one and the same cause, namely indigestion—for partial overfeeding would rarely be productive of serious consequences, were not the digestive organs in a state of relaxation from previous improper feeding.

But before we enter into a minute detail of the causes, symptoms, and cure of diseases generally, it will be very useful to say a word or two on their *prevention*, and at the same time throw in a few ideas on a subject which is but little understood, namely, the causing or engendering in neat cattle a *pre-disposition* to disease.

The prevention of disease in cattle is an easier task than many people imagine,—it consists of nothing more than taking care, while they are young, that they have good food in moderate, but sufficient quantities; a due allowance of pure and wholesome water; to be kept clean, and free from impurities both of the stable and the field; to be protected from damp and unwholesome influences; and to be allowed moderate and free exercise.—All this is very simple—it is merely taking nature for our guide, and following implicitly her plain dictates in preference to

our own opinions; but its adoption will be attended with the advantages of laying a sound constitution, which will not only render the animal less subject to many diseases, but will also be proof against many others.

A contrary practice, of slighting them while young; or of feeding them indiscriminately;—of suffering them to drink excessively, or of drinking standing and impure water;—of allowing them to remain dirty in their coats and stable;—of subjecting them to all weathers and influences;—and of restraining them in their exercise;—all, or any of these practices weakens their constitution, and lays the foundation of a train of disorders;—the nervous system becomes depressed, the digestive organs impaired, and the strength of the whole body diminished. In this state of comparative enfeeblement, they are susceptible of nervous diseases; or, in other words, more liable to their attack. This is what in medical language is called *pre-disposition to disease*, and may be considered as the remote cause of nearly every complaint to which they are in after life subject.

Such are the causes which induce a *pre-disposition* to disease:—the disposition or founda-

tion existing, it can be easily understood that a very slight exciting cause is capable of calling a disease into action or existence; cold, damp weather, or improper food or water,—circumstances which, in animals of sound and healthy constitutions, would be productive of but slight inconvenience, are here sufficient to produce serious and even fatal diseases.

DISEASES

WHICH RESULT FROM INDIGESTION.

INDIGESTION is the most varied of all diseases; beginning from simple and apparently unimportant deviations from health, it gradually becomes so complicated, and often at length so undermines every power of the system, that is difficult to give a view of its symptoms, which shall at once be sufficiently full and distinct.—It is an affection of the central part of a most complicated structure, capable of influencing even the remotest, and each through many channels, and in various ways.

The Yellows, or Jaundice.

This disorder often occurs to neat cattle, and

especially to milch cows; it attacks them mostly in the spring, or autumn; and consists of a disordered state of the third and fourth stomachs, and sometimes of the first.

Cause. A debilitated state of the stomachs, arising from slow and imperfect digestion, by which the bile, being obstructed in its proper passage, gets conveyed into the circulating mass of blood, and is diffused into the system itself. A weakness of the digestive organs, arising from improper feeding, seems to be the *pre-disposing* cause, and the variable state of the weather in spring and autumn, the immediate or *exciting* cause.

Symptoms.—In the first stage of this disease the whites of the eyes appear of a yellow tint, and as it increases, the whole skin becomes impregnated with the same yellow hue; the ears, tail, eyes, and mouth, are the parts where it is most conspicuous to the sight;—after a while, the bowels become costive, and the teeth loose. In every stage of the disease the animals have a weakness, and great debility of the nervous system, an aversion to move, and want of appetite.

When in the pasture, they wander about by themselves, frequenting the side of hedges or fences in a dejected manner. If a milch cow, the secretion of the milk is lessened, and what is yielded is of a yellowish and stringy quality; generally from one quarter only, and that quarter is hard, more or less swollen, and tender. As soon as want of appetite and the dull and languid appearance of the animal comes on, the milk is changed into a fluid somewhat resembling matter, and smells offensively.

If the disorder be neglected, or improperly treated, the udder sometimes bursts, and, after discharging matter for some time, a large fleshy fungus grows out of it, which remains for a time, and then gradually separates and falls off, while the sore which ensues gradually heals. Sometimes the udder remains in a hardened, condensed state, and becomes useless; or, in the language of dairymen, that quarter is lost.

Cure.—In the first attack of the yellows, let the following drench be given; and if the weather be open, turn the animal into a field where there is but bare pasture.

RECIPE No. 26.

Common salt,	four ounces;
Barbadoes aloes,	half an ounce;
Ginger,	one dram;
Water,	one quart;
Anodyne carminative tincture,	two ounces.

TO MAKE THE ANODYNE CARMINATIVE
TINCTURE.

Best Turkey opium,	one ounce;
Cloves, bruised,	one ounce;
Best Jamaica ginger,	one ounce;
Best Cogniac brandy,	one quart.

Mix them together in a well-corked bottle, shake it frequently for about three weeks; when settled, strain it through blotting paper, and it will be ready for use as wanted. Keep it well corked.

In very violent attacks of this disorder, the drench should be assisted by giving the animal whey every three or four hours, and throwing up a clyster. The swollen udder may have some olive oil gently rubbed thereon. And if the animal be in good condition, two or three quarts of blood may be taken with advantage; but it must

not be turned out to pasture the same day it is bled. After this disorder has yielded to medicine and attention, the following is an excellent stomachic to invigorate the system:

RECIPE No. 27.

Cummin seeds, powdered,	two ounces;
Aniseeds, ditto,	two ounces;
Gentian root,	two ounces;
Grains of Paradise, in powder,	one ounce,
Salt of tartar,	one ounce,
Treacle,	four table-spoonsful.

Mix, either in a quart of warm water, or a quart of thin gruel, for one drink, and give it new-milk warm.

Chronic Indigestion.

The *predisposing* cause of this disorder may be referred to the method of feeding cattle during the winter. Hay is then had recourse to, as a substitute for grass,—but all hay is not good; on the contrary, some is very deficient in nourishment, fibrous, and bad. If cows that are tied up, eat much hay of this kind, the coarse parts of the fibre accumulate in the third stomach, and at length weaken the digestive system.

Those which are more at liberty, are enabled through exercise to digest bad hay better: still the same effects, year after year, impair the digestive organs materially; for although the summer feeding restores the animal to health, the return of winter brings on a recurrence of the complaint, and each year's effect is an addition to those of the preceding. The *exciting* causes are those which follow:—

Cause.—Exposure to wet and cold weather; the grinding teeth injured by the stalks of dock, or bramble, mixed with hay, renders mastication difficult for a time; drinking freely of cold water after being heated by exercise, or worried by dogs. From either of these may indisposition proceed, they being often followed by a chill, or cold, which, if not timely removed, is sometimes productive of serious, and even fatal diseases.

Symptoms.—The first symptoms are, listlessness of manner, followed by a gradual disrelish of food; the animal appears dull and heavy, and sometimes feverish symptoms are induced. If the costiveness which usually accompany these

symptoms, be not removed, an inflammation of the bowels may be expected, and must be treated accordingly.

Cure.—As soon as you perceive that any of your neat cattle are affected by cold, or that they are costive, give either of the following purgative draughts:

RECIPE No. 28.

Glauber's salts,	one pound;
Ginger, powdered,	two ounces;
Treacle,	four ounces.

Or,

RECIPE No. 29.

Epsom salts,	one pound;
Aniseeds, powdered,	one ounce;
Ginger, powdered,	one ounce;
Treacle,	four ounces.

In either case, put the ingredients into a pitcher, pour upon them three pints of boiling water, and give it when new-milk warm.

In a day or two, repeat the drench, and if it do not remove the costiveness, administer the following clyster:

RECIPE No. 30.

Thin gruel, (new-milk warm)	three quarts;
Common salt,	eight ounces;
Sweet oil,	half a pint.

Bleeding may also be applied to, if feverish or inflammatory symptoms appear. If the animal be affected with a cough, quick pulse, a discharge from the nostrils, and soreness of the throat, it has settled into a catarrh, and must be treated accordingly. See *Catarrh*.

Diarrhæa, or Looseness.

Cattle are most subject to this complaint in the months of April and May, especially if the season be wet and cold: cows after calving are very liable to its attacks, if exposed to wet situations about this time: cattle which have been improperly or poorly fed during the winter, are also particularly subject to its influence.—It is mostly soon cured; but if not speedily attended to, or improperly treated, settles into *Dysentery*, and often terminates fatally.

Cause.—The remote or predisposing causes

are as before-stated; but the immediate or *exciting* causes exist generally in the changeable state of the weather, and the want of sufficient vigour in the animal to resist those changes; or from a weakness of the bowels, induced by bad or poor keep, and hastened by the debilitating effects of milking.

Symptoms.—Frequent and copious evacuations of their dung, sometimes of a slimy or mucous, and at others of a bloody, appearance. As the disease advances, the beast becomes reduced in flesh, and loses its appetite, the dung has a glairy appearance, and the complaint becomes settled into dysentery. It may be distinguished from the latter, however, or known if it has terminated in that complaint, by the purging in dysentery being accompanied with very severe gripings, and painful efforts to expel the dung; besides which, the latter is mostly prevalent in autumn.

Cure.—In the first place, if the weather be unfavourable, put the affected animal into a cow-house, or in a situation sheltered from the weather, and give the following drench:

RECIPE No. 31.

Barbadoes aloes,	four to six drams;
Common salt,	six ounces;
Ginger, powdered,	one to three drams;
Anodyne carminative tincture,	two ounces;
Water,	one quart.

Mix, and give it early in the morning.

If the weather be favourable, turn the animal into pasture which has but a bare, short bite. In the evening give the following cordial, astringent drench:

RECIPE No. 32.

Powdered catechu,	two drams;
Allspice, fresh powdered,	two drams;
Carraway, ditto	half an ounce;
Good beer, or good table ale,	a pint.

The first three ingredients must be simmered for a few minutes in half the beer, and when it is ready to be given, the remainder of the beer should be added.

These drenches should be continued three or four days after the scouring has ceased, and until the dung resembles that of healthy cows: the feeding, meanwhile, should be such as is easy of

digestion; if your hay be very good, give it, a little at a time, and often, with a little fine bran, or pollard: and let the water given to drink be just slightly warmed.

Dysentery, Slimy Flux, or Scouring Rot.

Cattle kept in low, damp, and swampy situations, are at all times subject to the attacks of this disease; but it is most prevalent in autumn. It is also the complaint into which diarrhœa generally resolves, when improperly treated, or neglected.

Cause.—Dysentery is mostly brought on by the perspiration being suppressed by exposure to damp, or sudden vicissitudes of the weather. Cattle, also, that have been overheated by driving, or worried, and afterwards lie down upon the wet grass, are very liable to its attacks. If the system be predisposed by bad feeding, or weakened by previous complaints, a very slight *exciting* cause will be sufficient to produce the complaint; a cold, or chill may be the first appearance that disease is present; and if those symptoms be disregarded, a diarrhœa, or dy-

sentery will inevitably succeed; and the more it is neglected the more difficult and obstinate will be the cure.

Symptoms.—The animal is seen to make frequent and painful efforts to expel the dung, which is thin, slimy, and altered in colour; sometimes, indeed, nothing but slimy or liquid matter is ejected: flatulency succeeds, accompanied with severe gripings of the bowels, evident from the restless state of the animal, frequently lying down and soon rising again: a rumbling noise is also heard in the intestines, from wind generated in them. As the disease increases, the beast becomes reduced to a weak and debilitated state; its appetite is lost, the dewlap hangs down, and has a flabby appearance; the dung runs off with a putrid and offensive smell, and as it falls upon the ground, rises up in bubbles, and a membranous or skinny-like substance is seen on it; the hair all over the body assumes a staring appearance, feverish symptoms ensue, the eyes become dull and heavy, the pulse quick, inflammation succeeds, and the disease terminates in death.

Cure.—Timely bleeding, purging drenches, and

clysters. The animal affected must be put under shelter, and fed on dry meat, such as good hay, ground oats, crushed barley, or beans, given a little at a time, and often. If little appetite exist, give stiff gruel through a horn, once or twice a day.

As soon as the disease is observed, give the following opening drench:

RECIPE No. 33.

Epsom salts,	one pound;
Ginger, in powder,	half an ounce;
Aniseeds, ditto	half an ounce;
Solid opium, cut small,	one dram;

Pour three pints of boiling water upon these ingredients, and when cooled to new-milk warmth, give it to the animal.

If this does not speedily allay the symptoms, give the drench No. 30; and if the eyes be inflamed, the twitchings of the belly painful, and the expulsion of the excrements accompanied with severe gripings, take away three or four quarts of blood from the beast, and give a pint of salad oil.

When the physic has operated, the following

astrigent drink may be given with advantage, and repeated every other day, for three or four days, if necessary:—

RECIPE No. 34.

Prepared chalk,	four ounces;
Bole armenic, in powder,	two ounces;
Aniseeds, powdered,	one ounce;
Ginger, ditto,	one ounce;
Solid opium, cut small,	one dram.

Mix for one drink, in a quart of warm ale or gruel.

In the worst stage of the disease, the surface of the body should be kept warm with a rug or woollen cloth.

Staggers, Vertigo, Lethargy, Swimming of the Head, or Paralysis of the Stomach.

This disorder has many names, but the symptoms are unequivocal, and too evident to be mistaken. It is the highest degree of disease in the digestive system, in which the muscular power of the stomachs have been so exhausted, that they are incapable of contracting upon the food

taken in by the animal; for although from habit the beast may continue to feed, the appetite is so depraved, that it no longer chooses its food, but eats, with apparent equal relish, or rather, indifference, from hedges and ditches, the coarsest and most indigestible food. It mostly attacks those animals who have been poorly fed in the winter, and are in spring turned into a fertile pasture.

Cause.—The exhausted state of the digestive faculty is the remote cause, while the vital power that remains, or the temptation of a change of food, inducing a continuance of appetite, by which the animal loads its stomach with improper food, is the *exciting* cause. The immediate seat of the complaint is in the brain,—a superabundancy of blood being determined to that organ, which, if not speedily checked, terminates in inflammation of the brain, phrensy, or *sough*.

Symptoms.—Heaviness of the head, and constant disposition to sleepiness, the animal sometimes resting its head upon or against a gate or hedge, and appearing almost insensible; and if it attempts to walk, it reels or staggers.

Cure.—The first thing necessary is to give the following drench, (No. 35): a clyster of salt and water, (No. 36,) must then be thrown up, and three or four quarts of blood taken away.

RECIPE No. 35.

Barbadoes aloes,	six drams;
Common salt,	eight ounces;
Flour of mustard,	one ounce;
Brandy, rum, or gin,	a wine-glassful.

Mix the first three ingredients in a quart of water, slightly warmed, add the spirits, and give it immediately.

The following clyster will also be necessary for expelling any hardened excrement which may be lodged in the bowels.

RECIPE No. 36.

Common salt,	eight ounces;
Warm water,	four quarts.

If the purgative drench does not act in the course of twenty hours, give about half the same quantity every eight hours, until the effect be produced: and if the complaint does not

subside under the united treatment of purgatives, clyster, and bleeding, each repeated at intervals, let the following be given to act upon the kidneys, and thereby divert the blood from the head:

RECIPE No. 37.

Powdered rosin,	two ounces;
Powdered nitre,	one ounce;
Cream of tartar,	one ounce;
Powdered ginger,	one ounce;
Powdered aniseeds,	one ounce;
Treacle,	four ounces.

Mix, and give it in a quart of ale, and repeat it, if necessary, after an interval of two days.

Loss of the Cud.

Rumination, or the chewing the cud, is, as we have before stated, that motion of the rumen, or first stomach, by which the food is forced back into the mouth to be perfectly masticated. This motion is not sudden, nor violent, like that of vomiting; but gradual and gentle, when the animal is healthy. When, therefore, an animal ceases to perform this essential act of digestion, it is an evident proof that the stomach is out of

order; it may depend on the state of the first stomach, or it may proceed from the third. It will require little argument to prove, that neither of these stomachs can remain disordered, and the others be free from disease; and it requires as little to shew that early attention to symptoms of indigestion are equally as essential as the evil is at first easy to remove.

Cause.—An accumulation of dry fibrous matter in the third stomach, or an adhesion between the first stomach and the side, originating in the animal having been stabbed on that side, to let out the confined air, when blasted, or hoven: either will cause imperfection in the digestive process; and which, if neglected, will bring on fever and even inflammation.

Cure.—The drench prescribed for diarrhoea, (No. 31,) should be administered. If there be quickness of breath, hot horns, and other symptoms of fever, or inflammation, the animal should be bled freely, and the following drench administered:—

RECIPE No. 38.

Epsom salts,	ten ounces;
Whey,	one quart.

Afterwards, if the weather be favourable, turn the animal into a field with a short bite of grass: but if it be wet, keep it under shelter.

Moor Ill, and Wood Ill, or Evil.

These, or rather this, disorder, for it is merely two names for the same disease, viz. weakness of the digestive system, is mostly prevalent among those cattle that are left to pick up a scanty subsistence on moors and common; with now and then a small allowance of indifferent hay; and is the inevitable consequence of poor and insufficient keep.

Cause.—Wood evil proceeds from debility, brought on by taking cold when exposed in bleak and barren situations; and the moor ill is occasioned by a want of sweet fresh water.

Symptoms.—Much the same in both; debility, and costiveness, succeeded by pain and stiffness in the joints.

Cure.—Remove the cattle to a better situation, where the grass is good and sweet, and where

good and wholesome water can be obtained: give the following drink, and it is most likely nothing more will be necessary.

RECIPE No. 39.

Grains of paradise, powdered,	two ounces;
Aniseeds, ditto	two ounces;
Carraway seeds, ditto	two ounces;
Fenugreek, ditto	two ounces.

Mix in about two pints of warm water, and give it at once with about two spoonful of treacle, or coarse sugar.

Or,

RECIPE No. 40.

Infusion of wormwood in ale,*	one quart;
Long pepper, pounded,	six drams;
Grains of paradise,	six drams.

Or, if very costive, you may give the drink prescribed for Red-water, Recipe No. 31, or 47. And a few drenches with ginger given afterwards will serve to complete the cure, and re-establish a perfect digestion.

* Infusion of wormwood in ale is made by putting two handful of wormwood in a clean stone pitcher, and pouring one quart of ale boiling hot upon it, then cover it close with a plate, and a cloth over that, till nearly cold, when it is fit for use.

Clue-Bound, or Fardel-Bound, and Pantas.

These are all different names for one and the same complaint; and its origin may generally be traced to a similar source as the proceeding.

Cause.—The same as wood-evil.

Symptoms.—The animal is said to be clue or fardel bound, where, in addition to the symptoms of wood-evil, it is disposed to costiveness; and when, as is often the case in the first stage of fevers, the thin excrements force their way through the middle, or on one side of the more hardened part. When this is observed, speedy relief must be afforded to the animal, or its life will be in danger.

Cure.—The animal must be removed into a better situation, the same as recommended in the cure of wood-evil; and the draught No. 29, should be given, and repeated, if necessary.

The following restorative drink will be found very serviceable in this, as well as in many other disorders, after the purgative drinks have sufficiently operated, and the animal become reduced by disease and medicine.

RECIPE No. 41.

Gentian,	one ounce;
Nitre,	half an ounce;
Salt of steel,	half an ounce;
Aniseeds	one ounce;
Carraway-seeds,	one ounce;
Ginger,	one ounce;
Treacle,	four table-spoonsful.

Powder each of the above, mix for one drink, and give it in a quart of warm gruel.

Flatulent Cholic, or Gripes.

This, though not a common complaint, is one that gives the animal much pain, but is easily relieved by prompt assistance.

Cause.—Eating unbruised corn of any kind, particularly oats, or the dry, fibrous kind of bad hay: particularly if at the time the digestive organs be in a weak state.

Symptoms.—The animal seems in great pain, often lying down, and getting up again she turns round her head to her hind parts, and endca-

vours to strike her belly with her horns, or hind leg: her appetite fails, and is indeed lost, being in too much pain to be able to eat any thing.

Cure.—Give the opening drench, recipe No. 31; a moderate quantity of whey may be given; and, if necessary, a clyster of half a pound of salt diluted in four quarts of water.

Stoppage of Water, retention of Urine, or Stranguary,

Is the consequence, generally, of the stomach and bowels being loaded, and thereby blown up with air; and is attended with intense pain to the animal.

Cause.—In neat cattle, it proceeds from the first stomach, or rumen, being blown up, or blasted; in which case, the urine is stopped by the bladder being pressed downward, so that its neck rests upon the bones which form the brim of the pelvis, and is thereby completely closed. Pregnant cows, during the latter period of gestation, are subject to stoppage of urine, when tied up, and fed wholly on hay; and especially when fed too liberally on grains.

Symptoms.—Being a part of the complaint termed *hoven* or *blown*, see those diseases.—We may add, that the animal labouring under this additional disorder, often strides as if endeavouring to void its urine, but without more effect than a few drops, and those not without considerable pain.

Cure.—The recipe No. 1, being a powerful opening drench, may be administered with good effect; if that cannot be conveniently had, the following will be an excellent substitute :

RECIPE No. 42.

Common salt,	six ounces ;
Flour of mustard,	a table-spoonful ;
Water,	one quart ;
Gin,	a quarter of a pint :

A little grated ginger may be added, and, instead of the gin, strong beer may be substituted, when it is more readily obtained.

A clyster, similar to that described in flatulent cholic, is indispensable. There is no difficulty, with a cow, in passing the fore finger into the bladder, and letting the urine flow off.

Atrophy, or Consumption.

This is an incurable disorder, unless taken early, and the animal kept in a good sheltered pasture. Some stock are tender, and of weakly constitutions from their birth; and, therefore, if placed in more exposed, and much colder situations than they were bred in, will be more liable to consumption, having less vital energy.

Cause.—The pre-disposing cause of atrophy is bad keep, but especially bad hay or straw. The chyle formed from such food becomes acrimonious, and inflames and obstructs the mesenteric glands, and produces a dreadful disease, even of the great mesenteric artery, which will always be found full of worms. Its *exciting cause* is, generally, a neglected cold.

Symptoms.—This disease is first discovered by the animal having a hoarse, or cough, and poking out of the neck: if it be now examined between the jaws, the glands there are swollen, which, pressing upon the head of the wind-pipe, cause the beast to poke out its neck for breath. If the disease be not checked, or if it does not

yield to medicine, the lungs become affected, producing a wheezing and difficulty of breathing on the least exertion. When the lungs are once attacked, no remedy can be applied; the knife of the butcher, is, therefore, the only resource.

Cure.—As soon as this disease is noticed, the animal must be taken from the field, particularly at night, and kept in a sheltered place; it should then be bled gently, and have administered the purging drink, receipe No. 28.—If not successful in this treatment, set a seton* in the dew-lap, and keep its bowels gently open, and give it but little solid food, and that of the best, and easiest digested.—The following drink may assist in the cure:

RECIPE No. 42.

Nitre,	two ounces;
Salt of steel,	one ounce;
Glauber salts,	four ounces;
Ginger and aniseeds, powdered, each	one ounce;
Treacle,	four ounces:

Mix these for one drink, put it into a pitcher, and pour a quart of boiling-water on it: give it milk warm. It may be repeated every third day.

* For the proper mode of setting a seton, see the Appendix.

DISEASES**WHICH ARISE FROM OVER-FEEDING.**

IN the diseases of which we have treated, there generally existed a *pre-disposing* cause in the constitution of the animal; and which, in a greater or less degree, tended to induce indisposition; a very slight cause, would, in such cases, be sufficient to excite or produce the next serious consequences.—In those which we are about to describe, the pre-disposing cause is not always so apparent; on the contrary, they generally have their origin, developement, and termination in sudden causes, as too freely indulging in rich nutritious food, or over eating after a previous comparative abstinence.

Neat cattle are most subject to these complaints in spring and autumn; the fresh springing grasses, and especially clover, tempt them to feed more greedily than usual; and their digestive faculties, enfeebled by winter feed, or other cause, are incapable of the extra exertion required of them. In such cases, the system becomes oppressed, and its action paralyzed: the effects are not always the same, but vary ac-

cording to the nature of the disorder.—Of these the most common is,

Hoven, Blown, or Blasted.

In our description of the digestive system of neat cattle, we stated, (in page 155), that there was in that part of the rumen which joined the second stomach, a kind of valve, which, during the mastication of the food, prevents the escape of air. In this complaint, the animal's stomach being filled by an unusual quantity of food, becomes distended beyond its capacity; the food then ferments, air is evolved, the whole body becomes swollen, rumination is completely put a stop to, and a considerable pain is produced.

Symptoms.—The beast swells, and a difficulty of breathing is produced, with much apparent uneasiness: if relief be not quickly afforded, the symptoms increase, the animal becomes unable to stand, and generally dies from suffocation.

Remedy.—The best cure is the *probang*,* a

* A more particular account of this useful instrument will be found in the Appendix.

flexible instrument made for this purpose, and sold by most saddlers and farriers. This being passed into the stomach, the confined air rushes out, and the animal is, for the time, relieved. When this useful instrument is not at hand, a very good substitute may be made with three small canes, each about six feet long. Bind them together with a waxed packthread, firmly securing, at one end, a ball of wood, about a pigeon's egg in size. To introduce this into the stomach, the bullock's nose should be held out as nearly in a straight line as possible with the throat; let an assistant hold it firmly in this posture, and at the same time let him grasp the partition of the nostrils with the fingers and thumb of his right hand; the operator can then easily force the ball into the stomach, and let out the confined air.

Some farriers afford relief by plunging a sharp knife into the distended rumen, on the left side, between the last rib and the hip bone. As soon as the knife is withdrawn, the air rushes out, and relief is afforded: the wound is then closed by a plaster of Burgundy pitch.—This is a bad practice: a second attack becomes more difficult of cure, as the wound adheres to the side: and every repetition increases the danger.

Either of the draughts, No. 28, or No. 29, may be given with good effect: or the cordial drink No. 39, may be administered: the beast should then be turned into a bare pasture, where it must work well for a belly-full, and the cure will be complete. The following

RECIPE No. 43.

Mild ale, ... one pint;

Ginger, powdered, a dessert tea-spoonful:

Is an excellent cordial drink to renovate the digestive faculties.

Choking.

Neat cattle are very subject to being blasted or hoven, from eating too greedily of artificial grasses, or succulent roots,—in the latter case, also, they are very liable to have a piece of turnip or potatoe stick in the throat. When this happens, which may easily be known by the animal's efforts to swallow the obstructing piece, it should be forced into the stomach;—this may be done by a moderate sized rope, about seven feet long; by which means also any air confined in the rumen, will escape.

The principal cause of this, which is rather

an accident, than a disease, is a disposition in the animal to eat greedily and voraciously, where tempting food offers. The cure may be completed by giving the recipe No. 43, and a bare pasture for a while, to renovate both its appetite and digestive faculties.

Fog Sickness.

At the latter end of summer, and in autumn, when the rainy season sets in, the grass generally becomes abundant; and, shortly after, the mornings are frosty. At this season, the digestive faculties, as well as the whole system, are weakened from the effects of the summer heat, the appetite becomes morbid and irregular, and some cattle will then eat voraciously. They then lie down to ruminate, probably when the grass is covered with hoar-frost; and this, together with the cold and damp of the atmosphere, so depresses the strength of the stomachs, as to put a stop to the digestive process. The body then swells, the animal is evidently in great pain, appears stupid, and breathes with difficulty.—Such are the cause and symptoms, which so far differ from *hoven*.

Cure.—The first thing to be done, is to bleed freely, the habit being at this season generally redundant. The *probang*, as used for *hoven*, or *blown* cattle, should be then employed, and either of the drenches No. 28, or 29, may be given: when this is operated, the cordial drink No. 39, should be administered, and the cure may be considered as effected.—Or the following drench may be substituted in this case, if more handy than either of the others:—

RECIPE No. 44.

Common salt,	ten ounces;
*Flour of mustard,	two table-spoonsful;
Water,	one quart;
Gin,	one quartern:
Mix, and give as one draught.	

A clyster of salt and water will also be of great service; and when the animal is a little relieved, it should be turned into a bare pasture; above all, do not suffer cattle to lie abroad at this season, but shelter them for the night either in a shed or out-house.

* A tea-spoonful of ginger in powder, may be substituted, when flour-of-mustard is not readily attainable.

Meadow Sickness.

Mr. Bromedge, of Lower Stone, Gloucestershire, put several cows into a piece of rich aftermath. Shortly after, when he went to see them, he found six of them ill, and appearing as if they wanted to vomit. He immediately drove them all from the meadow into a bare pasture, in which were a number of mole casts. The sick cows, led by instinct, went immediately to the mole heaps, and eat of the earth very greedily.—Mr. B. did not interrupt them, but awaited the effect; and, in short time, had the pleasure to see them all recover.—He observed, also, that the other cows did not attempt to touch the mole heaps.

This circumstance being communicated to Mr. White, that gentleman was led to an enquiry, the result of which proved that when animals gorge themselves, an acid forms, which passing into the fourth stomach, causes considerable irritation and pain. This acidity is corrected by chalk, or carbonate of lime. Under these convictions, Mr. White was induced in cases of this kind, as well as when cattle were *hoven*, to prescribe either of the following draughts:—

RECIPE No. 45.

Common salt,	four ounces;
Carbonate of soda,	one ounce;
Powdered aloes,	half an ounce;
——— ginger,	two drams;
Water,	one quart;
Anodyne carminative tincture,	two or three ounces:

Mix for one draught.

Or,

RECIPE No. 46.

Common salt,	six ounces;
Carbonate of soda,	one ounce and a half;
Flour of mustard,	one ounce and a half;
Ale,	one pint;
Water,	one pint:

Mix for one draught.

Precautions, by observing which most of the diseases resulting from over-feeding may be prevented.

When cattle are first put into clover, vetches, rich aftermath, or into any pasture much better than that from which they have been taken, let them remain not more than an hour at a time, particularly if clover, and then drive them into

a bare pasture; by which means they may be gradually inured to the change, and the evil consequences will be averted.

Generally speaking, a bare pasture is the only remedy required to renovate the digestive system, when impaired by previous excess.—And to keep it good, let them feed well, and often, and but a little at a time. And, whenever the brain is oppressed by repletion of blood, which is indicated by heaviness or evincing a disposition to sleep, bleed freely, or more sparingly, according to the emergency.

DISEASES

WHICH PROCEED FROM

REPLETION OF BLOOD.

THIS class of diseases comprehends the inflammatory, and other similar attacks, which are consequent upon the whole habit being oppressed by a superabundance of blood. Bleeding, and that promptly and freely, even to faintness, is the general and only cure: other remedies may be useful, and even essential to renovate the system; but it is upon copious bleeding that the life of the animal generally depends.

Red and Black Water.

These two complaints are but different stages of the same disease; the one proceeding from indigestion, and the other resulting from a neglect of removing the early symptoms, and terminating in inflammation of the kidneys.

The *pre-disposing cause* may be laid to the account of the bad hay or other indifferent food, upon which the animal has been kept, perhaps during the winter, and which contained more fibre than nourishment. These fibrous particles accumulate in the third stomach, and thereby depress and weaken the digestive system: sometimes they form into cakes of matted fibre, and altogether prevent the action of the third stomach.—While in this state, the animal feeds greedily, particularly on grass lands, and drinks as freely; hence it is that blood is quickly formed; and the action of the stomach being impeded, the kidneys are oppressed by an unusual suffusion of blood; the consequence is, that blood passes off with the urine, sometimes so copiously, that the animal bleeds to death. In a cow, the milk is soon reduced in quantity, and,

as the disorders advances, becomes discoloured; the beast is also frequently so weak, as to be unable to rise when down.

Symptoms.—The symptoms have been very generally described in the above statement; in addition, we may observe, that the excrement is sometimes discharged with considerable force, but in a small stream, watery, and mixed with hard knobs, forced from the matter accumulated in the third stomach: sometimes, these stop up the passage of the fundament; and then the finger must be introduced to remove the clots, or a clyster thrown up.

Cure.—A saline laxative medicine is most proper in this disease, to open the bowels; recipe 31, (page 169,) or either of the following, will answer the purpose:

RECIPE No. 47.

Barbadoes aloes,	six drams;
Glauber's salts,	six ounces;
Calomel,	one ounce and a half;
Carraways, powdered,	one ounce;
Water,	one pint:

Mix, and give it milk warm.

Or,

RECIPE No. 48.

Epsom salts,	six to eight ounces;
Water,	one pint;
Castor or olive oil,	six to eight ounces;

Ten ounces of common salt may be substituted for eight of Epsom, when more handy.

Where the medicine given does not operate freely, assist it by drenching the animal with whey. Take two quarts of blood, or more, according to the state of the animal's habit.

When you succeed in removing the hardened excrement from the third stomach, and in putting a stop to the discharge of blood with the urine, attention should be paid to the animal's diet, as the digestive system is in a very weakened state. Nothing is better adapted for this purpose than a field where the grass is short and sweet, and where it must exercise itself to obtain a proper quantity of food.

This disease being of an inflammatory nature, bleeding is indispensable; take about two quarts of blood, and if necessary repeat it the next day. Mr. White pursued this practice successfully, and never lost one through red water afterwards. If it be accompanied with looseness, or

symptoms of pain, as a straining or holding out of the tail, give in preference the recipe No. 31, and afterwards administer the cordial drink, recipe No. 39.

The following ball, being of a more astringent nature, may be administered with good effect, *after the costiveness has been subdued.*

RECIPE No. 49.

Venice turpentine,	four ounces;
Nitre, in powder,	two ounces;
Bay-berries, do.	two ounces;
Armenian bole, do.	two ounces;
Alum, do.	four ounces :

Make into one ball. Then slice the ball into a pitcher, and pour over it a quart of hot gruel; when new-milk warm, give it.

This ball may be repeated every other night.

Red water is often brought on by drinking turf or peat pit water.

Downfal, Udder Ill, Sore Udders, Inflammation of the Udder, &c.

From what we have said of the digestive process of the cow, and the intimate connection be-

tween the fourth stomach and the udder, the reader will be at no loss to understand that when that is out of order, the udder, and consequently the quality and quantity of the milk, must be materially affected.—These, or rather this complaint, for they are all one, or different stages of the same disease, of which the *pre-disposing* cause was bad feeding, and the *exciting* cause, a cold, or inflammation of the udder, is essential to be taken in time, and of the utmost consequence to owners of young cattle, who are very liable to its attack, especially at the time of calving.

Cause.—This disease may not only proceed from the above causes, but may also be induced by the animal drinking freely of cold water, when heated by exercise;—or by exposure and lying down in cold and damp grass at the latter end of the year, when the nights are cold and foggy, and at a time when the stomach is loaded with food, and the blood plentiful. It will be seen therefore that this disease is often an accompaniment of fog or meadow sickness, as well as of other complaints originating in colds or similar causes.

Symptoms.—One or more quarters of the udder becomes swollen, hardened, hotter than common, and painful when pressed; the milk is reduced in quantity, and changed to a ragged, bloody, or corrupt appearance. At other times, the secretion of milk is stopped, and the tumefied quarter proceeds to a state of suppuration. It not unfrequently happens, that the hinder extremities, at the same time, become swollen and inflamed, especially about the hip-joint, hock, and fetlock; which often disables the animal from rising when down. Sometimes the symptoms of this disease assume a different appearance, and the udder is scarcely or not at all affected; but the disease appears confined to the joints; which is known by their being swollen and inflamed, and attacking such cows as are liable to the downfall in the udder.

Cure.—As soon as the disease is discovered, remove the animal from the pasture, and take from her from three to five quarts of blood; especially if the cow be in good condition, and breathes quickly, and appears stupid: do this at night, and, the next morning, give her the drink recipe No. 31, or 28, or 29. If the weather be

damp and cold, keep her under shelter, and feed her moderately with nourishing food; but if the weather be fine, turn her into a bare pasture, where she will be obliged to exert herself for her food. The swollen udder, or rather that part of it which is affected (for there is seldom more than one part or quarter affected at a time) should have the bad milk drawn from it three or four times a day; for if suffered to remain in it, it will irritate and increase the inflammation. Bathe it also after milking with olive oil, or elder ointment; and if the swelling continue, and be not very tender, the following embrocation will be of great service:

RECIPE No. 50.

Olive oil,	three ounces;
Oil of turpentine,	one ounce;
Camphor,	two drams : mix.

Or,

RECIPE No. 51.

Soft soap,	four ounces;
Spring water,	one pint;
Rectified spirits of wine,	two ounces;
Spirits of turpentine,	two ounces;

Dissolve the soft soap in spring-water boiling hot; and, when cold, add the spirits of wine and turpentine.

Let this mixture be well rubbed on the part affected night and morning, after the milk has been drawn off; and if the udder be very bad, repeat the milking in the middle of the day, and bathe the parts affected with cold water.

When the purging drinks have operated, give the following occasionally, which will not only help to eradicate the disease, but is excellent as a preventive of its recurrence:

RECIPE No. 52.

Nitre,	two ounces;
Cape aloes, powdered,	half an ounce;
Salt of tartar,	one ounce;
Yellow resin, powdered,	four ounces;
Juniper-berries, ditto.	two ounces;
Ginger, ditto.	two ounces;
Treacle,	two table-spoonsful:

Mix them all together, and give it in a quart of warm ale.

Abscess of the Udder.

When the previous disease, downfal, or udder-ill, has been neglected, or improperly treated, and especially when the bad milk has not been drawn off, pus, or matter, forms in the quarter,

which, after some time, bursts. In this case, the wound sometimes gradually heals; at others, a fungus, or excrescence, sprouts from it, which is often of considerable size. This excrescence, however, if left to itself, gradually drops off, and the udder then heals. Sometimes, the matter gradually drains off from, or accumulates in, the teat, which will then require to be opened with a lancet. This should be done by a skilful person; or the remedy may prove worse than the disease.

Another termination of this disorder, is a gradual thickening or hardening of the quarter, which ends in the total obliteration of that part of the udder.

The mode of cure has been pointed out in the last disease, of which, indeed, this is but a second or more confirmed stage. In some cases, it may be found necessary to amputate the whole of the udder. Where this is really indispensable, it can only be done by a person of experience.

By a preventive regimen, the predisposition to this disease may be eradicated from the system. Mr. Clayton, in his treatise on cattle, says—A farmer had a large cow, of gross habit of body, that had been accustomed to have this complaint

several times in the course of one season; of course, to a considerable disadvantage: he next summer dried and fed her well; but to no use, for she was not long at grass, before the old complaint again attacked her. Mr. Clayton was consulted, and he advised giving her a pound and a quarter of Glauber's salts, every six weeks during the time of feeding. This prevented its return: the cow fattened, and did well.

Blain, or Fever, with Swelling,

Called also by the name of hawkes, or gargyse, is a disease which, although not unfrequent, in general is not discovered until it has made some progress; it then appears with a swelling of some part, and, in some few instances, extends over the whole surface of the body, accompanied with feverish symptoms.

Cause.—A redundancy of blood in the system, or a cold taken by the beast while under such influence: those cattle are the most subject to this complaint that are in high condition, and fed on rich pastures. It is most prevalent in the summer months, especially when the weather is

hot and sultry, which oppresses the animal, and deranges the healthy functions of the body.

Symptoms.—The animal appears dull and languid; the eyes, red and inflamed, with tears trickling from them; swelling in some part of the body, as about the nose, lip, and under the chaps, extending to the brisket, or even under the belly till the udder is affected. Sometimes the swelling begins about the eyes, and appears on other parts of the body; there are often blisters under the tongue, and back part of the mouth; the pulse is quicker than natural; there is more or less beating of the flanks, and the bowels are sometimes bound. As the complaint advances, a copious flow of saliva proceeds from the mouth; the beast gets weak, and reduced; a considerable quantity of watery matter congregates in the tumefied part; which must be discharged by puncturing with a knife.

Cure.—Bleeding is chiefly to be depended on in the cure of this disease: on its first appearance, three or four quarts of blood, according to the size and strength of the beast, should be taken away, and repeated, if necessary. After

bleeding, administer the following cooling purging drink:

RECIPE No. 53.

Epsom or Glauber salts,	twelve ounces;
Nitre,	one ounce;
Ginger, powdered,	half an ounce;
Aniseed ditto	half an ounce;
Treacle	three ounces.

Pour the ingredients into a pitcher, pour three pints of boiling water upon them, and give them new-milk warm.

Puerperal, or Milk Fever, and Inflammation of the Womb.

This is a disease which most peculiarly attacks cows in high condition at the time of calving, or is brought on by the force so often and so improperly used in delivery. It is most likely to happen when the cow calves during the hot months of summer; and the cows most predisposed to it, have generally large udders very full of milk several days before calving, which are often much inflamed and swelled. It is a dangerous disease, when severe, and often proves fatal.

Cause.—The predisposing cause is, as we have observed, the too high condition of the cow at the time of her calving; its immediate cause is generally an inflammatory state of the udder, most commonly induced by the animal taking cold, and from a redundancy of blood in the system. About the third day after calving, an unusual quantity of blood is determined to the udder, to assist in the formation of milk; but when the udder is inflamed, this action is interrupted, and the blood is transferred to other parts of the body, which deranges the whole animal frame, and produces the milk fever.

Symptoms—The first appearances of milk fever are generally perceived about the second or third day after calving: the animal refrains from her food, looks dull and heavy, and walks as if she had caught cold: a cold, shivering-fit, comes on, accompanied with a debility, so weakening, that the beast commonly drops, and is often unable to rise, until relief be afforded. She becomes very restless, and appears to feel in great pain in the body, as she often looks towards her flanks, kicks with her feet, and seems much distressed. As the disease proceeds, the head becomes affected,

the cow loses her senses, and will knock and bruise her head against any thing, if care be not taken to prevent her. The pulse is now quick, and the tongue parching dry; the bowels are costive; no milk is secreted, and the slimy discharge ceases. Unless the disease be subdued, the body becomes enlarged; and if this swelling be not soon decreased by medical assistance, all hopes of recovery may be considered at an end.

Remedy.—If the feverish symptoms run high, and are attended with much pain, bleed copiously, and repeat it, if necessary; but if the fever be but slight, the animal should be bled but once, and that only in proportion to her strength. Let the drink recommended in page 122, (recipe No. 5), be given as soon as possible, and repeat it every twenty hours: if the bowels be not readily moved by the purgative drink, inject the following clyster:

RECIPE No. 54.

Thin gruel,	three quarts;
Common salt,	eight ounces;
Spirits of turpentine,	half a pint;
Treacle,	four ounces.

Mix, and when new-milk warm, inject it.

When the bowels are opened, and the animal is low and unable to rise, give the following cordial drink, and repeat it, if necessary:

RECIPE No. 55.

Grains of paradise, powdered,	half an ounce;
Ginger,	ditto half an ounce;
Aniseed,	ditto two ounces;
Carraway,	ditto two ounces;
Flour of mustard,	two ounces;
Salt of tartar,	half an ounce;
Oil of turpentine	half an ounce;
Treacle	four tablespoonsful.

Mix, and give it in a quart of warm gruel, with a wine-glassful of gin or brandy.

Cows afflicted with the milk fever require great care and good nursing: the stall where they live, must be well littered, and it is frequently necessary to cover them with a blanket, or some warm covering, when they are cold and shivering. The udder should be rubbed two or three times a day, for about half an hour each time, with soft soap, or pipe-clay, and cold spring water, which will assist in subduing the inflammation. The paps should also be drawn occasi-

onally, to encourage the flow of milk; and if the milk appear, it is a good sign. As they are frequently unable to take nourishment sufficient to support themselves, it will be essential to assist them. For this purpose give the following

GRUEL.

Make a stiff gruel, of an equal quantity of linseed in powder, and oatmeal, boiled in a sufficient quantity of water; and when new-milk warm, give the beast about two to four quarts, three or four times a day.

The gruel may be sweetened with coarse sugar, or treacle; and a little common salt may be added.

Prevention.—The best way to prevent this disease, is to take four or five quarts of blood from the beast, about eight or ten days before her time of calving: let this be done at night, and keep her in a fold-yard till morning. The purging drink No. 5, should be given before the animal is put to grass; and this treatment, together with proper food, and *none but pure water*, will cool the body, and obviate the tendency to inflammation in the udder.

Murrain, or Pestilential Fever,

Is not a periodical disease, nor is it caused by improper feeding, or dependent on any of the causes which produce fevers or inflammations generally; it must rather be considered in the light of a plague, or pestilence, induced by the atmosphere being infected by the *miasmata*, that is, the injurious aguish air which arises from low, flat, and marsh districts and swampy lands: this seems evident from the fact, that it has raged most at those times when, and in those places where, inundations have most prevailed.

The murrain was formerly considered a fatal disease; but of late years it has yielded to medicine and judicious management. It is very pestilential, and if one of the herd be attacked, it must instantly be removed from the others, or it will infect them all as certainly as the glanders do a horse. It takes place at all seasons, but rages most in summer and autumn. The fate of the beast is generally determined on the seventh day, although the danger is not over till the ninth. Bulls and oxen are not so violently attacked as cows and calves; and cows with calf, or sickly cow-calves, suffer the most severely.

Symptoms.—The first appearance of murrain is indicated by a decrease of appetite; a poking out of the neck, as if there were some difficulty in swallowing its food; a shaking of the head, as if the ears were tickled; a hanging down of the ears, and deafness; a dulness of the eyes, and a moving to and fro, in a constant uneasiness. All these signs, except the last, increase till the fourth day; then ensue a stupidity, and unwillingness to move, great debility, a total loss of appetite, a running at the eyes and nose, sometimes sickness, and throwing up of bile, a husky cough, and shivering. The fever, which was continual the three first days, now rises, and increases towards the evening; the pulse is all along quick, contracted, and uneven. A constant diarrhœa, or scouring of foetid green excrement, a stinking breath, a nauseous steam from the skin, infect the air: the blood is very florid, hot, and frothy; their urine is high coloured; the roof of the mouth and the barbs are ulcerated. Tumours, or boils, are to be felt under the fleshy membrane of the skin; and eruptions appear all along the limbs, and about the bags. If a milch cow, her milk dries up gradually; her purging is more violent; and on the

fourth day she is commonly dry. There is a sharpness in the dung, so that the fundament is visibly irritated for some time. They groan much, are worse in the evening, and mostly when they lie down. These symptoms increase till the seventh day, about which time the crisis or turn takes place: whether for the better or worse, the following directions will readily determine:

The favourable symptoms are,—eruptions all over the skin, or boils, as big as pigeon's eggs, in various parts of the body, but particularly from head to tail, along each side of the backbone, and so ripe as to discharge putrid and stinking matter; large abscesses formed in the horns, or in any other parts of the body; the dung more consistent and hard; the urine thick, and not quite so high coloured: a shivering fit, succeeded by a general glow of heat, upon which an abatement of the fever takes place, and a more regular pulse; the nose sore or scabbed; the eyes bright and brisk; and the animal, on the approach of any one to its hovel, pricks up its ears, and will eat a little hay or peas offered it: these symptoms are a sure sign that the beast is out of danger.

Unfavourable symptoms.—But if, on the seventh day, the boils are decreased in bulk, or disappear, and not break outwardly: if the scouring continue; if the breath be hot, while the body, limbs, and horns, are cold; if the groaning or difficulty of breathing be increased; if the running from the nose and eyes be lessened; if the eyes are dim and sunk into the head, with a perfect stupidity; if the urine be dark coloured; the pulse intermittent, and a cadaverous smell be observed, we may safely pronounce the creature to be near its end.

Remedy.—As soon as the symptoms determine, or indeed, as soon as you have reason to expect that the beast is infected, remove it from the rest, and put it by itself into a house or shed, well ventilated. Then bleed it copiously, even to fainting; wash the body all over with water and vinegar, new-milk warm, to clear the skin from filth; rub it frequently, and it will derive much benefit by the pores being kept clean and open. Make a rowel* as soon as possible, in the dewlap, and keep it open until a complete cure

*To do this properly, see directions in Appendix.

be effected; if the dung be hard, a cooling purge, (as No. 5, or No. 53,) should be given, and plenty of antiseptic drinks, as bran-water, vinegar, bit-
ters; and salts, diluted with water: but no hay, until the beast be sufficiently recovered to chew the cud; wash the mouth and nostrils carefully and often; if a purging comes on by the fourth day, check it by warm medicines, which will throw the morbid matter off the skin, as snake-weed, or Venice treacle; or the following drink:

RECIPE No. 56.

Prepared chalk,	four ounces;
Powdered aniseeds,	two ounces;
Powdered ginger,	one ounce;
Opium, cut small,	one dram.

Mix, and give it in a quart of warm ale or gruel.

If the colour of the mouth become dark, the creature cold, the dung dark and foetid, and the discharge from the mouth and nose thin, an ounce of jesuit's or oak bark, with snake-root, should be given every four hours, to prevent mortification. If matter be formed in the horns, or other part, an opening should be made, and digested by warm applications, or poultices. At

the crisis, if a purging occur, empty the bowels with a smart purge, and give a draught of warm ale at night. On recovery, the beast should be gradually exposed to cold air, and, by degrees, habituated to its usual food.

Murrain, or Common Fever.

Murrain, however, is not always so malignant, nor so rapid in its progress, nor so certainly fatal in its termination. This milder complaint may be considered as a nearer approach to common fever, attended with local inflammation; and its symptoms may be characterized as follows:—

Symptoms.—A shivering, and trembling of the limbs; want of appetite; cough or hoosing; sometimes accompanied with tears; the mouth affected with blisters, or white spots; in a milch cow, the secretion of milk is diminished. In a few days, the inflammation extends to the lungs; the pulse quick—about 60 in a minute; the muzzle dry; the head, horns, and breath hot; the body and limbs cold. As the disease proceeds, these symptoms aggravate, and without prompt and proper care, terminate fatally.

Cure.—House the animal by itself, and bleed it copiously; in general, three bleedings are requisite, one each day. Set a seton* in the dew-lap, and keep it running for some time. Give the purging drink, No. 5, and repeat it occasionally. Keep the beast clean, by rubbing, and also by being well littered, and let it have meshes of scalded bran, or bruised malt, with a little ground corn or barley mixed. On the turn of the disease, if the animal be low and debilitated, the restorative drink, No. 41, will be very useful.

After-treatment; or, eradication of the disease.
On the recovery of the animal, the cow-house, or place in which it was sheltered, should be made comfortable and very clean, but properly ventilated; all the litter must be burned; and if the disease was malignant, it will be necessary to fumigate the house, and every thing in it, with the following fumigation mixture:

FUMIGATION MIXTURE.

Common salt,	two pounds;
Oil of vitriol,	one pound.

* See the Appendix.

Place the salt in an earthen vessel, in the middle of the cow-house, pour the acid gradually on it, stir it well about with a long stick, and immediately leave the place, and close the door.

This fumigation should be done at least twice, at the removal of an infected beast, and on its recovery; and the stalls should be cleaned and lime-washed. All the cattle that die of the complaint must be buried at least five feet deep, to prevent the effluvia that would otherwise arise from the carcase, and inevitably spread the infection.

INFLAMMATORY DISORDERS.

Inflammation of the Brain, Phrenzy, or Mad Staggers,

Is a most distressing complaint; it comes on gradually, but soon becomes ungovernable, and unless efficient help be afforded, invariably terminates in death.

Cause.—In London, this disease is known by the name of madness, and is there brought on by the cruel and inhuman practice of over-driving: but in the country, it most commonly proceeds from a redundancy of blood in the system, induced by cattle thriving too fast on rich pasture grounds, or feeding them too quick to get them in high condition; it is also brought on by the intense heat of the sun, or by severe bruises on the head, or by being harassed or frightened.

Symptoms.—The eyes appear inflamed, and ready to start from their sockets; a peculiar wildness manifests itself in the animal's looks, and it staggers when it moves. A perfect delirium or madness succeeds; and the beast, after furious exertions, sometimes falls down, and lies for some time, either senseless or struggling. It then starts up, repeats the same effects of ungovernable madness as before; and again falls down suddenly, till at last it ends in death. In these paroxysms they will tear up the earth with their feet, and toss every thing up with their teeth or horns which comes in their way.

Cure.—In the early stage of this disorder, this is easy enough,—a copious bleeding, until the

animal faints, will then be sufficient; but if the disease has reached to an ungovernable height, there will be some difficulty in accomplishing this: still it must be done, or the animal will soon die. When the beast is secured, if the arteries cannot be opened, both neck veins should be opened *as quickly as possible*; for by keeping the neck corded without opening the vein, the danger is only increased. Repeat the bleeding, if necessary; give the following purge, and the cure will be effected. A bare pasture is a good restorative.

RECIPE No. 57.

Barbadoes aloes,	twelve drams;
Carbonate of potash,	three drams:
Glauber's salts,	-seven ounces;
Water,	one quart.

Mix, and give it at one dose.

*Inflammation of the Lungs, Peripneumony,
or Pleurisy.*

This disorder, like most others, has several names, but the symptoms are plain and determinate; the most prompt care is essential; for when

inflammation once seizes the lungs, death, or at best, a lingering recovery, will be the result, unless speedy help be afforded.

Cause.—Obstructed perspiration from sudden and great changes of weather, especially when very wet; being drove a long distance, and then exposed to the cold and damp air of the night, particularly such beasts as are fat and in good condition. It is also brought on by keeping them too well, or by feeding them too hastily.

Symptoms.—Difficulty of breathing, but quick and laborious, indicated by the quick motion of the flanks; this is often preceded by a cold shivering fit; the mouth is open, and a ropy kind of fluid frequently runs from it; a cough, or hoosing, accompanies the complaint. The animal looks dull, and seldom lies down, as it can breathe best in the standing posture; the head and ears hang downward; the horns, especially about the roots, are hot and feverish; and the animal has no appetite. At first, the pulse is low, but soon rises, particularly after bleeding, and beats from 60 to 70 in a minute.

Cure.—Copious bleeding is the remedy most to be depended upon. The beast must be put into a cool cow-house, well littered, and bled freely, even till fainting; and this must be repeated after an interval of eight hours, if the difficulty of breathing and other inflammatory symptoms are not much relieved. A third, or even fourth bleeding may be necessary, but not in such copious quantities, about two quarts being then amply sufficient. The following purgative drink should be administered between the bleedings:

RECIPE No. 58.

Epsom salts,	twelve ounces;
Nitre,	one ounce;
Elecampane,	one ounce.

Put the ingredients into a pitcher, pour three pints of boiling water upon them, and give when new-milk warm.

This may be repeated every third day, if necessary.

When the animal has recovered, avoid as much as possible, all the causes which induced the complaint; house it (particularly if a cow, during the night, for a short time; and when you

turn it out to feed, let it be to a bare pasture, where it must for a short time use good exercise in obtaining a bellyful of grass. Give it also, occasionally, eight to twelve ounces of Epsom or Glauber's salts. Care must be taken to get them up again by feeding very gradually, or a relapse will be the consequence.

*Catarrh, Fellon, Cold, Epidemic Fever,
Influenza, or Distemper.*

All these are the names of one distemper, and that a *cold*, which prevails most in the spring of the year, when the wind is easterly, and the weather wet and cold. It is also caused by sudden changes from heat to cold, or the contrary; drinking freely of cold water, after being heated by exercise or over driving. Sometimes it comes on without any perceptible cause, and prevails in so great and so malignant a degree, as to appear contagious.

Symptoms.—The beast appears dull and heavy, with weeping eyes; the nose is dry; the coat looks staring, the hair seeming to stand the wrong

way on the animal's back; loss of appetite; and if a milch-cow, her milk is much lessened in quality, or she is said to trick of her milk. If the hand be pressed upon the chine, or any part of the back, the animal mostly gives way: it is then called the *chine fellow*: at other times, the joints are more particularly affected, it is then termed the *joint fellow*. When the cold is more violent, feverish symptoms appear; the breathing becomes more rapid and difficult; the flanks work much, the animal hooses, the pulse is quick, the nose and mouth dry, and the breath hot: the beast becomes restless; moves from one place to another in evident distress; and the bowels become costive. Inflammation of the lungs or bowels may now be said to be produced.

Cause.—The causes of cold are various, and have been generally described; we may add, that those cattle are most liable to be attacked which have been tenderly brought up, or that have been poorly fed, or exposed to cold, damp, or piercing winds. Cows after calving are also very subject to colds.

Cure.—Where the feverish or inflammatory

symptoms *have not yet appeared*, a warm, cordial drink, as the following, will, by acting as a stimulant to the stomach, assist the defective digestive energy, and (in the cow) increase the secretion of milk; it also restores the obstructed perspiration, and enables nature to resume her former course:

RECIPE No. 59. (CORDIAL DRINK.)

Sweet fennel seeds, fresh powdered,	two ounces;
Cummin seeds,	ditto two ounces;
Long pepper,	ditto one ounce;
Turmeric,	ditto one ounce;
Ginger,	ditto one ounce;
Elecampane	ditto one ounce;
Treacle, or coarse sugar,	two ounces.

Mix in a quart of ale, poured boiling hot upon the whole in a pitcher; cover down till new-milk warm, and then give it at once.

Or, No. 39, may be given, mixed in a similar manner.

These drinks will effect a cure, occasionally repeated, *if no feverish symptoms ensue*; but if they do, a free bleeding must be applied to, and repeated, if necessary; and the treatment should be the same as for inflammation generally.

Inflammation of the Stomach,

Is a serious disorder, and takes place in various degrees, each varying in its symptoms, but all of them bearing sufficient resemblance to each other to determine the complaint. A certain degree of inflammation in this important organ will cause an alteration in the milk, and when it arrives at the udder, it will irritate and inflame it, and cause the milk drawn off, to be thin, yellowish, and stringy. This sometimes has an offensive smell, and even assumes the appearance of matter, and at others a reddish look, as if blood were mixed with it.

Cause.—When the stomach is oppressed by too much food, the digestive process is suspended, the food ferments, and a quantity of air is extricated, which distends and inflames the stomach. It differs from the disease termed *hoven*, or *blast*, that being an affection of the rumen or first stomach; while in this it is the fourth. Unwholesome food is the most common source of this disease, bad hay having generally too much of the fibrous parts, which lodge in

the third stomach, and unless they are soon dislodged, induce inflammation of the stomach.

Symptoms.—Heaviness, dulness, and loss of appetite; the lungs are affected; the breathing disturbed; and sometimes accompanied by a hoarse, or cough: the milk of the cow is affected, both in quality and quantity; and the animal is in great and evident pain.

Cure.—Bleeding is the first remedy in this as in all other inflammations; which must be done copiously; especially when it has been accustomed to good pasture; and then a saline opening drench may be given:

RECIPE No. 60. SALINE OPENING DRENCH.

Epsom salts,	ten ounces;
Carbonate of soda,	twelve drams:
Water,	one quart;
Castor oil,	six ounces.

Mix, and give it.

Where it has arisen from feeding on bad hay, the following is decidedly the best drink:

RECIPE No. 61.

Barbadoes aloes,.	six drams;
Powdered ginger,	a dram and a half;
Water,	one quart;
Epsom salts,	six ounces;
Carbonate of soda,	six drams;
Tincture of opium,	six drams.

Mix for one draught.

Whey, or thin bran meshes, are perhaps the best food, while the beast is under cure; drinking freely of water, slightly warmed, will assist in clearing the third stomach, and a clyster thrown up will be of advantage: light, good food, perfectly easy of digestion, must be at first carefully observed, and when the stomach is cleared, the animal may be kept better; but this must be done cautiously, as it will take some little time to restore the digestive system to its wonted energy.

Inflammation of the Heart.

Is generally attended with symptoms of inflamed lungs, and sometimes with pain in the bowels;

it may, in short, be considered as general inflammation.

Cause.—This inflammation is generally brought on by the animal drinking cold water when over driven, or heated by exercise, although this is more likely to produce inflammation in the stomach and bowels; it is also occasioned by over-driving cattle when too well fed and unaccustomed to exercise.

Symptoms.—Much the same as in inflamed lungs, except that the symptoms are more violent, and the beast in more evident distress; but this may arise from the animal, subject to this complaint, being generally in full flesh and fat.

Cure.—Copious bleedings, repeated at intervals of six or eight hours, to fainting, and keeping the animal cool and quiet, are the only remedies to be depended upon; and when the animal is a little recovered, it should be fed on thin bran-mashes, or whey; and when it is capable of being again turned out, good, sweet, short grass, should be afforded it.

Inflammation of the Kidneys.

The kidneys of neat cattle are predisposed to this disease by the vessels of that region being previously relaxed: the immediate or exciting cause of acute inflammation in the kidneys, are, blows on the loins, strains, or violent exertions, as by one animal riding or mounting on another while in heat, as well as by a superabundant determination of blood to the region of the kidneys; and nearly resembles, in this respect, red water.

Symptoms.—A frequent desire to void urine, which is done with difficulty, and in small quantities. And, instead of being transparent, and nearly limped, it is bloody, or dark-coloured.

Cure.—Bleeding freely, is the first remedy, and then the saline opening drench, (recipe No. 42,) may be administered. If the urine continues bloody, or of a red colour, after the pain and difficulty are gone off, give the astringent drench, (recipe No. 32). The state of the bowels, however, must be attended to, and cos-

tiveness avoided, or removed when it takes place. Good, light, nourishing food is also essential to perfecting a cure.

Inflammation of the Bowels.

This disease is the second or inflammatory state of the complaint called *blasting*, or *hoven*; and requires prompt and efficient relief, or it inevitably and speedily terminates fatally.

Symptoms.—The animal first appears uneasy, and loses its appetite; the body swells, mostly on the left side; as the pain increases, a greater restlessness comes on; the beast now often lies down, but soon rising again, strives to strike its belly with its hind feet or horns: if relief be not soon afforded, the bowels become so greatly distended by confined air from the undigested food, that they sometimes burst; or, the inflammation increasing, the breathing becomes more disturbed, the pulse quicker, and the pain more violent; mortification ensues, and death is then the inevitable result.

Cause.—Improper feeding, as unbroken or un-

bruised grain, particularly oats; or excessive, or more than usually nutritious food, so that the animal gorges more at one time than the stomach is capable of digesting; or being turned into pastures more luxurious than previously: either of these will often produce indigestion and flatulency; and, if not timely attended to, occasion all the above distressing symptoms.

Remedy.—Bleed; if the animal be in good condition, and the horns hot, do it freely, even till it faints; then mix and give the drench:—(recipe No. 31).

The following clyster may be added; and if the animal be turned into a field bare of pasture to exercise itself, the cure may be considered as effected.

RECIPE No. 62.

Table salt,	eight ounces;
Water,	four quarts.

Where the attack is but slight, and quickly attended to, the bleeding may be omitted.

Inflammation of the Liver.

When the liver becomes inflamed, the biliary secretions are diminished, and less bile flowing into the intestines, not only causes costiveness, but the bile being taken up in the circulating mass of blood, produces a yellowness of the eyes and other parts of the body; differing from the yellows, in being accompanied with costiveness and feverish symptoms.

Causes.—Fat beasts, in good condition, are most subject to this disease, particularly in the summer; being worried and driven about by boys or dogs in very hot weather; drinking cold water while heated; exposed to cold and heat, the one suddenly succeeding the other.

Symptoms.—Cold shiverings alternating with increased heat of the body; breathing short, indicated by the working of the flanks; pulse quick; the white of the eyes, mouth, and other parts of a yellow cast; the bowels costive; and the appetite lost.

Cure.—It would be little consequence whe-

ther this disease be mistaken for inflammation of the lungs, or severe catarrh, which is often the case, from its peculiar characteristics, the yellow tinge of the eyes not always appearing at the commencement of the complaint, as the bleeding and purging adopted for the cure of those disorders are equally effective in this: indeed, the same curative process may invariably be pursued in this case as is there described.

Inflammation of the Spleen or Milt.

This disorder is as acute as any of the inflammatory class, generally destroying the affected animal in three or four days. It usually happens in very hot and dry weather, and is supposed to arise from an immoderate indulgence in slaking the thirst of animals at such a period. To avoid this disease, cattle should, in hot weather, be driven, particularly at night, to some high situation, where there is only a moderate quantity of grass, and no water.

Symptoms and Cure.—Both the symptoms and cure so much resemble what has been said under the head of inflammation of the liver, that we cannot do better than refer our reader thereto.—

This is, however, a severe attack, and more dangerous in its consequences; and therefore demands very prompt and effective remedies.

Inflammation of the Womb.

See Puerperal or Milk Fever.

Inflammation of the Shape.

Cows are liable to this complaint, particularly in the summer season. It most commonly attacks cows in high condition, and arises from the system being oppressed by a redundancy of blood.

Cause.—In addition to the above causes, this disease may arise from cows taking cold in calving; it also sometimes occurs after bulling, particularly where the bull is infected with the disease termed *bull-burnt*, which see.

Symptoms.—The shape is considerably irritated, which is evident from the actions of the beast; the shape is swollen; and boils frequently break out about the barren, which break and

discharge: and when the inflammation extends, a considerable quantity of glairy fluid discharge from the sheath, or vagina.

Cure.—Bleed the cow copiously, and again the next day, but in less quantity: then give her the drink No. 28, or 29, as there directed; and repeat it on the third day, if necessary. Bathe the tumified parts and the shape two or three times a day with the following lotion:

RECIPE No. 63.

Goulard's extract,	two ounces;
Spirits of wine,	one ounce;
Rain water,	one quart;

Mix the goulard and spirits of wine first in a bottle, add the water, and keep it well stopped.—Shake it before using.

If this disease should have been caused by her taking the bull, the following injection will be useful to stop the glainy running from the sheath:—

RECIPE No. 64.

Alum, in powder,	eight drams ;
Blue vitriol, do.	eight drams ;
Boiling water,	one quart ;

Mix, and when cold, it is fit for use.

Continue to use both the lotion and injection so long as the inflammation and glairy discharge continue.

Inflammation of the Eye.

Arises sometimes from a redundancy of blood in the system, and the animal catching cold while in that state; and sometimes it is caused by external wounds and bruises, or brought on by any substance getting into the eye, and irritating it.

Symptoms.—Redness of the eye, with the haw drawn as much as possible over the affected part, and the lids constantly closing: the eyelids are also swollen, tears run down the cheeks, and a discharge is emitted from the internal angle of the affected eye.

Cure.—When the inflammation runs high, take three or four quarts of blood, and give the cooling purging drink, No. 53; then put the beast in a shady house, and apply the following lotion to the inflamed eye:—

RECIPE No. 65.

Spirits of wine and camphor,	} one ounce;
(or camphorated spirits of wine,	
Goulard's extract,	one ounce;
Spring-water,	one quart;

Mix, and shake the bottle when used. Apply it with a clean linen rag for about fifteen minutes two or three times a day: slightly open the eyelid now and then, and inject a little of the lotion into the eye.

Cancer of the Eye,

Is not properly an internal complaint; but often originating from one; for when an inflammation of the eye has been neglected, or improperly treated, particularly when it originated from a blow, it often terminates in a cancer of the eye; which being somewhat of the nature of scrophula in the human subject, will, if not checked, destroy the eye, and affect even the

bones themselves. It also arises from poor living, and other similar causes, which induce a peculiar state of the constitution.

Symptoms.—The globe of the eye appears dull, and lessened in bulk; an offensive fluid is discharged from it, which is so acrid, that it destroys the skin from the part, over which it runs. The eyes are swollen and ulcerated, and sometimes appear almost glued together.

Cure.—Bleed, and give the purging drink, No. 5, which may be repeated every third day, if necessary; then make the following ointment, and apply it to the eye.

RECIPE No. 66.

Red precipitate, finely ground,	two scruples,
Spermaceti ointment,	eight drams;

Mix, and put it to the eye morning and evening, by means of a feather.

*Quarter Ill, Black Leg, Black Quarter,
Shoot of Blood, &c.*

The disease known under the above names is somewhat similar to murrain, except that this is

almost peculiar to young cattle, from one to two years old, and is a very dangerous and destructive disorder.

Cause.—Quarter ill, or black-leg, is almost always caused by putting or removing young stock from poor low grounds into rich pastures: tempted by the luxuriance of the change, they eat to satiety, an superabundance of blood is the consequence; and, although the kidneys and other vital parts resist for awhile the influx, the heart and lungs are at last suffocated.

Symptoms.—The approach of this disorder is observed, by the animal separating itself from its companions, appearing listless, heavy, and rejecting its food; it often, however, comes on so suddenly, that the owner finds the animal dead before he has even suspecting any thing amiss. The immediate symptoms of this disease are,—a lame walk, as if sprained, with a swelling of the hind quarters, and sometimes of the shoulders and fore parts. These swellings, when pressed, make a crackling noise, occasioned by the air therein being acted upon by a putrid state of the blood. The mouth, and un-

der the tongue, are sometimes affected with blisters, from the severity of the fever, and the pulse is quicker than natural.

Cure.—This disease rarely admits of cure; it may, however, fortunately, be prevented, as is evident from what we have said of its cause.—The moment you see a young animal attacked, house it, and bleed it copiously. This is the only remedy, and nothing short of fainting will prove that you have bled it freely enough. Never mind the quantity—*bleed till it faints*. Two hours after, give the following drink:

RECIPE No. 67.

Epsom salts,	six ounces;
(If not at hand, table salt may be substituted;)	
Water, (hot, almost boiling)	one quart:

Mix, and give it when new milk warm.

It rarely happens, that a cure is effected in this disease where the swelling has taken place; as, however, such is sometimes the case, it is well worth the trial, even in the most desperate case. The tumified or swelled parts should have an incision made the whole length of the swell-

ing, and nitre put into the opening, with pledgets of tow soaked in hot spirits of turpentine, to encourage the formation of matter, and check the progress of the gangrene. These dressings must be renewed every day.

Prevention.—We have said this dreadful disease may be altogether prevented, and perhaps, it is more desirable to be informed how, than to know how to cure it. Young cattle that thrive best, are most subject to this complaint, and should be most watched. As soon as any one of the herd is attacked, remove it and put it by itself while under the curative process: in the evening bring them all into the fold-yard, take about two quarts of blood from each, give them the drink No. 67, and, next morning, turn them out in a bare pasture.—By this means young animals may be preserved from this ravaging complaint.

EXTERNAL DISEASES, WOUNDS, AND BRUISES.

Chronic Rhumatism, called also Chine Fellon, and Joint Fellon.

THIS disease is generally the result of a neglected catarrh, settling in the back or joints, and is attended with weakness and loss of flesh.—

Symptoms—For the first few days, the animal appears only stiff in the joints; but afterwards it begins to swell, and become painful, especially when the beast attempts to move. Sometimes the stiffness extends all over the body, to such a degree, that it cannot lie down or get up again, without assistance.

Cure.—First remove the animal to a sheltered situation, and rub the swollen joints with neats'-foot oil, or an embrocation made as follows :

RECIPE No. 68.

Sweet oil,	four ounces;
Oil of turpentine,	two ounces:—Mix.

The drench (recipe No. 31) is the best that can possibly be given; and should it appear necessary to do any more, repeat the embrocation rubbing, and give it half a pint of good ale or beer, warm, with a little ginger, morning and evening.

Joint Yellows, or Tail-rot.

This disease is of the consumptive kind, and arising from causes similar to the preceding, and can, like that, be remedied only by change of situation and food, a warm sheltered field, or, in cold weather, a warm cow-house, with straw to lie down on, and bran meshes with a little bruised malt, and a moderate quantity of good hay.

Symptoms.—Inability to lift the tail in dunging or making water, in consequence of which the tail and hind parts become very filthy, and covered with dung: there is also a tenderness about the loins, and about the rump, and a tightness of the skin covering those parts. A ridiculous idea prevails with some cow-doctors, that there is a worm in the tail; and, under this silly supposition, they make an incision into the part where there is most weakness, or where the

joints appear loosest. In a day or two, this sore becomes painful, and induces the animal to make an exertion. This they pronounce a cure; how falsely so, the result too often proves.

Cure.—If this disease be taken in time, the cure is easy, and costs but little. First, gently wash the part affected with clean water, and remove all the dirt and filth; then bathe it with the cooling lotion No. 65, and administer a gentle cooling purge, as No. 31, or No. 5, and afterwards a cordial astringent drench, as No. 32: in treatment, the directions given for the cure of chronic rheumatism may be also followed in this; and if the beast be in good condition, and symptoms of inflammation appear, take away about three quarts of blood.

Locked-Jaw,

Is generally the effect of wounds, either of the head, horns, or extremities; or brought on by eating poisonous herbs or insects, by which the whole nervous system is affected, and sometimes extends over the whole body.

Symptoms—A sudden stagnation and contraction of almost the whole muscular system; every muscle appears seized at once, and the jaws are so fast closed, as very often to require an instrument to force them open, at the time of giving medicine; the eyes appear to glisten, and fixed in their orbits, with a very peculiar anxiety wrought upon them; and the breathing is affected.

Cure.—Rub the jaws as well as the muscles of the neck, when affected, with some linament, and then cover them with a fresh sheeps'-skin, with the flesh side inwards, to keep up a copious perspiration; or if this cannot be obtained, a warm blanket may be used. Give the animal a saline cooling draught, as No. 5, or No. 31, and hasten its effects by a clyster. If the disease be difficult to subdue, throw two or three pails of water over the beast, and then rub its sides down, till dry, with a whisp of straw.—If it be in summer, let the water be *cold*; but if it be in winter, let it then be warm. If the disease originated from a poisonous herb or insect, bleed copiously, if the animal be in good condition, and repeat the operation, if necessary.

Wounds.

Wounds are generally caused by their goring each other with their horns, or by breaking over fences; and, when deep and extensive, are followed by inflammation. The treatment of these wounds, although mystified by farriers, is very simple; too often, when the wound is considerable, and some important part injured, the irritating treatment adopted, destroys the animal; and in less severe cases, stimulating applications are highly improper.

In deep or extensive wounds, particularly in the belly, chest, or joints, the most effectual means are necessary, to prevent a fatal inflammation.—Bleeding freely, cleansing the wound, and bathing it with a cooling lotion (as No. 65) and administering a laxative medicine, as No. 5, or 31, are the first remedies; and afterwards emollient fomentations. When the inflammation has subsided, and the wound discharges good matter, a tent of digestive ointment may be introduced daily, that it may heal from the bottom. If the opening be small, and the matter has not free vent, it should be so enlarged,

that no hollow part may remain, by which the matter may be confined.

When a wound bleeds considerably, there is little danger; but when necessary to stop it, pressure is the most effectual means. When the belly has been wounded, and the bowels obtrude, they must be very carefully put back again, and the dirt, if any, be washed off, but with warm water only: the wound should then be stitched up, but with few stitches; and a bandage should be applied, as a further security.

Wounds of less consequence are easily cured, a little lotion to bathe the part affected, and a gentle purgative, with bleeding, if inflammation be present, will generally prove amply sufficient.

Poultices are useful in assisting to heal bruises or wounds, but care must be used in their application; for instance, they must only be applied *after the part affected has been well bathed and cleansed*, and then the simplest are the best.

Bread and water poultices are most useful where the wound is angry, and difficult to heal from the presence of some foreign body within it, as thorns, splinters, or the like.

Linseed-meal poultices are best where a gathering has taken place, and should be drawn

to a head, that the matter therein may be discharged.

Marshmallow ointment, or spermaceti ointment are both very useful in healing flesh wounds, or places that have gathered, and discharged.

Strains and Bruises.

Where considerable, bleeding is essential: afterwards apply a fomentation of very warm water, and an emollient ointment. In situations that will admit of it, an emollient poultice is to be preferred. When the inflammation has subsided, the following embrocation may be applied; which is equally good for wounds.

RECIPE No. 69.—*Embrocation.*

Sweet oil,	two ounces;
Oil of turpentine,	one ounce;
Liquid ammonia,	one ounces;

RECIPE No. 70.—*Digestive ointment.*

Hog's lard,	four ounces;
Turpentine,	four ounces;
Powdered verdigris,	one ounce:

Melt the two first over the fire, and while stirring it add the verdigris; continue to stir it after taking from the fire till the ointment be cold.

Foul in the Foot, Loe, or Low,

Proceeds either from the fulness of habit of body, or redundancy of blood in the system; from being on wet grounds, or from hard driving. Neat cattle are very liable to this complaint; but cows of a gross habit of body suffer most from it.

Symptoms.—It first makes its appearance betwixt the claws or hoofs in the form of a hard crack, attended sometimes with inflammation; in a short time this discharges a fetid and offensive matter, similar to that of the grease in horses' heels. At other times, it makes its appearance with swelling upon the corset between the hair and the hoof, and about the fetlock-joint, attended with violent pain and inflammation; the swelling sometimes extending all up the leg, and the pain so considerable, as to reduce the beast of its flesh till it becomes a mere skeleton.

Cure.—Bleed copiously, or until the animal faints; if sufficient blood can be taken from the toe, by opening the artery going to that part, it

will quickly and readily afford relief. If the disease first make its appearance between the claws, wash the part clean from all dirt and filthiness; when dry rub a tar rope to and fro between the claws of the hoof, till an evident glow of warmth is produced; then dress the part with a wooden skewer dipped in butter of antimony, oil of vitriol, or nitrous acid. Let them stand dry one hour after, and then turn them on a dry pasture.—Do this for two or three days together; but if the parts about the fetlock-joints swell, and appear inflamed, apply a large poultice of linseed meal, bean-meal, or rye-flour, and continue to do so until the inflammation and swelling be reduced. The cure of this disease will be considered accelerated, if the following saline purgative be administered :

RECIPE No. 71.

Glauber's salts,	one pound;
Ginger, powdered,	two ounces;
Treacle,	four ounces:

Put the ingredients into a pitcher, and pour upon them three pints of boiling-water: when of a new milk warmth, give it at one dose.

The following is an excellent ointment with which the wound in the foot may be dressed:

RECIPE No. 72.

Hogs'-lard,	two ounces;
Common turpentine,	four ounces;
Blue vitriol, <i>very finely powdered</i>	half an ounce:

Melt the lard and turpentine together; and when removed from the fire, stir in the blue vitriol: continue stirring till cold, and it is fit for use.

The Mange,

Is seated in the skin, and proceeds, generally, from scanty or improper food, during the winter; it makes its appearance early in the spring. The itching occasioned by this disease causes the animal to rub itself against the trees, or gates, until the hair be rubbed off, and the skin thickened, and drawn into folds about the shoulders, neck, or cheek. The best situation for beasts so affected, is a field where the pasture is rather bare.

Symptoms.—The skin, or hide, appears fast on all parts of the body; and every time the beasts

rub themselves, the hair comes off, and a thick white scurf, of a scabby appearance, is to be seen a short time after.

Cure.—The parts affected must be well rubbed with the following ointment, every third or fourth day, for about three times. Rub it in under a warm shade, when the sun is out; or, if done in the cow-house, hold a heated iron at a proper distance, whilst another person rubs it on.—The effect of the medicine will thus be improved; and in slight cases, one dressing will be sufficient. Inveterate cases will require it to be well rubbed in with a hard brush; the parts being previously curried with an old curry-comb.

RECIPE No. 73.

Hog's lard,	eight ounces;
Spirit of turpentine,	two ounces;
Flowers of sulphur,	four ounces;
Sulphur vivum	two ounces.

The following drink will, by promoting the suspended secretions, very much accelerate the cure.

RECIPE No. 74.

Carraway seeds, in powder, two ounces;
Aniseeds, ditto, two ounces;
Grains of paradise, ditto, one ounce;
Nitre, ditto, one ounce;
Flowers of sulphur, two ounces;
Crude antimony, in fine powder, half an oz.;
Treacle, four table-spoonsful.

Mix it in a quart of warm ale, and give it at one dose.

If the disease be of an inveterate nature, this dose must be repeated.

Warbles, Worms, &c.

Are small tumours, which, in the spring of the year, and in summer, appear in various parts of the body of neat cattle. They are occasioned by the bite of a gad-fly, which punctures a small hole in the back of horned cattle, and therein deposits its eggs. These, being speedily hatched by the heat of the animal's body, a small tumor arises, containing a grub, or maggot, which inflames the part, and thereby causes matter to form. In process of time, this abscess bursts, and discharges the maggot, which now soon

becomes a fly; that, in due time, deposits its eggs on the skin of the animal, like its parent.

Cure—The usual way of curing the warbles, is to pull off the scab that covers the tumour; and pour a few drops of black oil, made according to the following directions, into the wound: or where this is not in readiness, a little spirits of turpentine may be applied.

RECIPE No. 75.

Yellow basilicon ointment,	four ounces;
Spirits of turpentine,	one ounce;
Oil of vitriol,	half a dram.

First mix the ointment and turpentine together, and afterwards add, by a little at a time, the oil of vitriol; keeping it constantly stirred until well incorporated. It is then fit for use.

Cancerous Ulcers,

Appear chiefly on the glandular parts of the body; but those on the cheeks, eye-lids, and on the glands between the jaw-bones, are the most difficult to heal of all the ulcers to which neat cattle are liable; indeed, some of them baffle all the powers of medicine.

Symptoms.—These ulcers make their first appearance in a hard tumour, seated in some glandulous parts of the body. Some of these are moveable; others, fixed: some are inflamed, and quickly break out, and discharge a thin acrid matter; others discharge a thin yellow matter, and the wounds are apt to fill up with fungous, or proud flesh.

Remedy.—The curative process depends much on the part of the glands where the ulcer is seated. There are some parts which will admit of a total extirpation; which may be done with a suitable knife, or, if preferred, by actual cautery. When the wound is thoroughly cleansed from all extraneous matter, let it be touched all over with lunar caustic, or sprinkled with red precipitate; and afterwards dress it with the following:—

RECIPE No. 76.

Egyptiacum,	two ounces;
Compound tincture of myrrh,	one ounce;
Spirits of turpentine,	one ounce;
Sublimate, finely powdered,	one dram;
Spirit of salt,	four drams.

Mix, and keep it in a bottle for use.

Dress the wound with small pledgets of lint or tow, dipped in the above mixture, once a day: and if any superfluous flesh appear, keep it down with caustic; or before dressing, sprinkle the wound all over with blue vitriol.

When the wound has been well cleansed, and the acrid discharge has stopped, make a fresh ointment as follows:

RECIPE No. 77.

Yellow basilicon ointment, four ounces;

Spirits of turpentine, one ounce.

Mix, and keep it in a pot for use.

With a wooden spatula well mix one part of this linament, (No. 77,) with two parts of the ointment, No. 76; and with this mixture dress the wound once or twice a day till healed.

A purgative medicine occasionally administered, will hasten the cure, as by that means, the quantity of blood determined to the affected part will be purified and lessened, and the ointment dressing will then act more powerfully on the wound. No. 71 is a very useful recipe for this purpose.

Angle Berries, or Warts.

Young heifers, or cow-calves of the *first* or *second* years, are most subject to these excrescences, which are cutaneous eruptions, or tumours, growing out above the surface of the skin, in various parts of the body, and have a very disagreeable appearance.

When they proceed from the udder, they are not only disagreeable, but ultimately cause the cow to be very troublesome to milk. They rise from a small base, and hang in a pendulous form. Some farmers tie a string tightly round the base, close to the skin, and thus suffer them to rot off of themselves: others secure them with a strong binding of twine, and then cut them off with a sharp knife, afterwards dressing the wound with oil of vitriol. If, however, they are attended to in time, which is by far the best plan, they may be destroyed by touching them a few times with the end of a thick stick dipped in strong aqua fortis, or, as it is termed by the chemists, nitric acid.

Sore Teats.

Some cows are very subject to sore teats, particularly such as have newly calved; if this be the case in summer, they often become ulcerated, and the flies plague them to a degree which renders them extremely difficult to milk: it is also a great nuisance at the time of milking, as blood and corrupt matter are apt to pass between the fingers into the milk.

The following linament is very useful for anointing sore teats, and should always be kept in readiness for use:

RECIPE No. 78.

Ointment of elder,	four ounces;
Yellow basilicon ointment,	four ounces;
Spirits of turpentine,	one ounce.

Mix, and well incorporate them together on a slab, and it is fit for use.

With this ointment you may well rub the cow's teats every night and morning, after milking. If in the summer, and the flies be troublesome, add one ounce of assafoetida, or aloes, in

powder, and dissolve it along with the ointment. This will prevent the flies from teasing the animal.

If the teats be tender, only, and not sore, a little gentle rubbing with weak salt and water will, in general, be sufficient.

Lice in Cattle,

Are troublesome, and in their effects cause the animal to be poor in flesh and appearance. One or two washings with the following lotion, applied with a sponge, at an interval of five or six days, will generally remove those troublesome visitors:—

RECIPE No. 79.

Stavesacre,	four ounces;
Tobacco, cut small,	one ounce;
Urine,	two quarts.

Boil it till reduced one-third in quantity, and when cool it is fit for use.

If this do not effectual succeed, dust common Scotch snuff on the animal, and when a cure is effected, give it a good rubbing with a whisp of straw.

MISCELLANEOUS RECEIPTS.

Poisons

Proceed from various causes, mostly during the summer season, and generally from eating some poisonous vegetables, as the yew-tree, hemlock, the several kinds of crowsfoot, or drinking stagnated water, swarming with a great variety of insects, many of which are of a very hurtful nature.

Symptoms.—A violent pain and sickness at the stomach; the body frequently swells to a prodigious size, attended with giddiness and stupidity; eating the yew-tree will sometimes induce madness; but from whatever source the poison may have been taken, it generally proves fatal in a short time, if suitable remedies are not promptly made use of.

Cure.—As soon as you suspect any of your animals to be poisoned, bleed it freely, and administer the drink, No. 71, with the addition of

one ounce of salt of tartar. If the body swell much, have recourse to the probang, as recommended for the cure of cattle, when hoven, or blown. This will give instant relief, by giving vent to the foul air; particularly if the poison proceed from eating any vegetable production.

It will also be generally necessary to add to the preceding treatment the following drink, to neutralise the effects of the poison. A clyster is also useful in removing any obstruction in the bowels.

RECIPE No. 80.

Prepared kali, (or salt of tartar,)	one ounce;
Castor oil, (or olive oil),	four ounces;
Tincture of opium,	half an ounce.

Mix, and give it in a quart of warm gruel;

If it should be found necessary, this may be repeated, daily, until the animal be relieved.

Bite of Venemous Reptiles.

Neat cattle are more liable to be stung by vipers or adders than any other domestic animals, and their bite is sometimes attended with

dangerous consequences.—Indeed instances have been known of their proving mortal. The stings of several insects are also attended with considerable pain and inflammation; and, although not so serious in their results, require a similar treatment.

Cure.—Well rub the parts affected with the following linament two or three times a day, until the inflammation and swelling abate.

RECIPE No. 81.

Olive oil,	half a pint;
Strong spirits of hartshorn,	four ounces,
Spirits of turpentine,	four ounces:

Mix them well together by shaking in a bottle, and shake them well every time they are used.

In some cases, that are more dangerous than others, the parts affected, particularly about the head, should be fomented two or three times a day with the following fomentation, or with warm water:—

RECIPE No. 82.

Bruised white poppy heads,	eight ounces;
Camomile flowers,	four ounces:

Boil these a short time in about two gallons of water, and then strain it off for use.

Let the fomentation be quite warm ; and after using it rub in the linament described in recipe No. 81. .

If any feverish symptoms appear, (as will be the case in warm weather, take from the animal two or three quarts of blood, and, a few hours after, give the purging draught, No. 71. And if the animal appear weak or much reduced by bleeding or purging, give it the cordial drink, No. 39, and if an ounce of strong spirits of hartshorn be added to the cordial drink, it will be the better.

Bull Burnt.

This is a local disease, evidently of a venereal nature, affecting the sheath and penis or yard of the bull ; the parts becoming swollen, tender, and full of small ulcers ; there is also a discharge of matter from the yard, and the animal in staling seems to suffer considerable pain. If while in this state the bull have access to the cows, he will communicate the disease, the vagina and shape of the cow will soon be affected, the parts will inflame and swell, and a discharge of disagreeable, ichorous matter will take place.

Cure.—The most effectual way of curing this disease in the bull, is to throw him down, and turn him on his back, with his belly upwards. Take a linen cloth, fold it round his yard, and gently draw it out of its sheath, so that you can bathe and wash all the ulcerated parts with the following lotion :

RECIPE No. 83.

Goulard's extract of lead,	two ounces;
Camphorated spirits of wine,	two ounces;
Rain, or soft water,	half a pint:

Mix, and keep it in a bottle for use.

Take care that in every dressing, which should be done at least twice a week, every part is properly bathed with the mixture. Of course, he must be kept from the cows till well.

If the disease should have been some time on the bull, it will be necessary to use a more powerful mixture; as the following:

RECIPE No. 84.

Sugar of lead, white vitriol, blue vitriol,	
and bole armenic, of each,	half an ounce;
Boiling water,	one pint:

Mix, shake it well; and when new milk warm, put it into a bottle for use.

This a powerful lotion—too strong, indeed, to be used as a first application; it may, however, be used afterwards with perfect safety. As the bull gets better, give him a cooling purging draught, as No. 71, once a week, and repeat it two or three times.

To cure the cow.—The lotion, No. 83, is quite strong enough—No. 84 is much too powerful.—Bathe the infected parts with a linen rag soaked in the lotion, and folding it round the finger, introduce it thus up the vagina; or it may be injected by a syringe.—Give her also the cooling purging draught.—A few weeks is generally sufficient for the cure.

The Cow-Pock,

Is a disease, similar in some respects to the grease in horses' heels: it proceeds gradually to maturity, and then declines and dies away.

Symptoms.—The eyes of the animal appears heavy and dull, and the milky secretions are considerably lessened: the beast moans, and wanders about by itself: irregular pustules appear on the nipples of the udder; which, at first are commonly of a palish blue, or rather

approaching to a livid colour, and surrounded by inflammatory appearances.

Cure.—When the disease is first observed, a cordial drink, as No. 39, or 40, should be given to warm and stimulate the stomach and invigorate the system, by which nature will be the better enabled to repel the disease.—If feverish symptoms appear, give the purging drink No. 71, to cleanse the body and check the fever. The teats and udder may be well rubbed twice a day, after milking, with the following lotion, which is very serviceable for sore teats, from whatever cause they may proceed.

RECIPE No. 85.

Crude sal-ammonia, powdered,	half an ounce;
Wine vinegar,	half a pint;
Camphorated spirits of wine;	two ounces;
Goulard's extract of lead,	one ounce:

Mix, and keep them in a bottle for use.

To dry a Cow of her Milk.

When a cow is destined for the shambles, it is necessary to dry her of her milk. To do this,

requires care, more so in some cows than others, particularly those who give the largest quantity of milk, or are of a gross habit of body; as without both care and management, these will be liable to the downfall, either in the udder or foot, or it may terminate in some inflammatory disorder. It is a subject, therefore, with which every farmer and grazier ought to be well acquainted.

Cows that are apt to milk themselves, are difficult to dry: such should therefore be dried early in the spring, while at dry meat; others may be dried, either in the pasture, or in any other place. Cows that feed in the pasture, and give a considerable quantity of milk, particularly if in good condition, ought to be put into a fold-yard over night, and from three to four quarts of blood taken from each. The next morning, give the following drink.—

RECIPE No. 86.

Powdered roach-alum, seven ounces;

Bole armenic, powdered, two ounces:

Mix these in a pitcher, and pour upon them three half pints of boiling ale; add a pint of good vinegar, and give it when new milk warm.

Milk the cow clean, then give the above drink immediately, and turn her into a bare pasture: about four days afterwards, if her udder appear hard and full, fetch her up, milk her clear, and repeat the draught No. 86.

This is generally sufficient to dry a cow of her milk; but as some give so much, as to be difficult to dry, it will in such cases be necessary to repeat the drink every third or fourth day until the effect be produced. In other cases, it will be as well, occasionally, to substitute the following drink, in lieu of the former: it is equally efficacious, and, under some circumstances; much more so.

RECIPE No. 87.

Red wine tartar, in powder,	one pound;
Treacle,	four table spoonsful.

Put them in a pitcher, and put three pints of boiling water on them: stir the whole together, and give it when of the warmth of new milk.

Concluding Remarks.

We have thus given the causes, symptoms, and methods of curing the most serious and most prevalent diseases to which neat cattle are subject. In many instances, however, disease may be arrested in its earliest stage; and, by prompt attention, prevented from extending.

Plain directions for the proper mode of setoning, and bleeding, are given in the Appendix; which also contains a description of the use and application of the probang, the lancets, and other instruments used in the operations occasionally necessary in the diseases of neat cattle.



OF THE
SELECTION AND MANAGEMENT
OF SHEEP.

THE structure, habits, and diseases of sheep, so nearly resemble those of neat cattle, that whatever we have said of the one, will apply equally to the other: the same care should be used in the selection of sheep for stock, as was directed in the choice of cattle; a similar treatment should be observed, with respect to the land upon which it is intended to feed them; and an equal care exerted to apportion and vary their food, in such manner as to prevent the disorders which arise from repletion, as well as those which result from stinted or bad food.

The diseases which prove most fatal to sheep, commit the greatest ravages among those in the best condition, either in the spring, or at the latter end of the year, when the season is unusually wet or changeable; and those sheep which have been principally fed upon turnips, are most subject to their attacks.

Like neat cattle, they are very subject to a plethoric habit, or fulness of blood; it is therefore very dangerous to change the pasturage of sheep from a bare to a more luxuriant pasturage, except by slow degrees.

Low grounds, or woodland pastures, where the air is moist, especially in wet seasons, are unfavourable to the health of sheep. In wet seasons, they should be kept in the highest and driest lands; for a dry air is peculiarly congenial to the healthy condition of these animals.

When disease attacks your flock, endeavour to ascertain the cause or causes which produced it; whether it arises from plethora, or redundancy of blood in the system; infection; improper feeding; humidity of the air; or extreme heat or cold: this being discovered, you can the more readily apply the most proper remedies, and materially lessen the violence of the disease. This plan will also enable you the better to prevent its recurrence.

The best way of obtaining information, is, when any of your animals drop, to open it, or get it opened, in order to find out the nature and seat of the complaint; by which means, the shepherd, in future, will be the more readily

enabled to put a stop to the fatality of the disease.

Most of the diseases to which sheep are subject, are, as we have observed, similar to those of neat cattle, and require a very similar treatment: generally speaking, also, the same medicines may be administered to the one animal as are directed for the same complaints in the other, but in less quantity; a sixth part of the quantity given to neat cattle, being a fair proportion for sheep.

The quantity of blood proper to be taken from a sheep, must depend upon the habit of the animal, and nature of the disease; from eight ounces to a pint being generally sufficient: but in plethoric or inflammatory disorders, a pint and a half, and even a quart, will not be too much. When it is necessary to repeat bleeding in sheep, it will be best to reduce the quantity taken each time. Three or four ounces is usually found sufficient to be taken from a young lamb.

Sheep and lambs are sometimes bled in the vein below the eye, and in the nose: this may, perhaps, be the best, where the complaint affects the head of the animal; but where it is necessary to relieve or reduce the system, it is much

better to bleed them in the neck, as neat cattle usually are. The blood should be caught in a basin, that the proper quantity may be readily ascertained.

The diseases of young lambs are most frequently owing to want of proper support, improper diet, or undue exposure to wet or cold weather, which debilitates the animal system, and induces frequent and severe colds.

We need not here repeat what we have said of the choice and management of neat cattle, being equally applicable to sheep; but a summary of the principal directions will be certainly useful.

In purchasing sheep, select those reared from the healthiest and best stocks.

Choose those in preference which have been fed upon poorer or barer pastures than your own: but be careful not to place them at once upon land much superior to that to which they have been accustomed.

In very wet weather, they should be sheltered, particularly in the night, and a little good dry

hay given them; and in snowy weather, or severe winters, they should be housed, and properly tended and fed.

In all cases where disease attacks them, be prompt in ascertaining the cause, and ready in administering the proper remedies; as many of the diseases of sheep begin and terminate in a few hours.

Of the Lambing Season.

This period must of course depend on the time when the ram is put to the ewes; but, generally, the latter end of February, or beginning of March, is considered the best time; as the lambs then produced, if properly reared and tended, are much the strongest. Still this is often an inclement season both for the ewe and the lambs, especially if they have been badly kept before yeaning. The consequence is, a severe loss is often sustained both among the ewes and their offspring.

Should the dam not have had sufficient support for herself, the lamb will necessarily be poor and weakly at the time it is yeaned. It

is therefore essential, that every care should be paid to these animals, which nature and the season of the year may render necessary. About six weeks before lambing, the ewe should be supplied with plenty of good food, in order that nature may provide for the offspring at the appointed time. If attention be paid to these particulars, the health and strength of the parent animal will be ensured, and it will be the better enabled to go through the difficulty of parturition; the lamb, also, will be in better condition, and more likely to survive any severity of season which may follow.

Every person who would be successful in rearing sheep, must be provided with a fold yard, suitable for the purpose; this may consist of a small plot of ground, well protected from the north-east and westerly winds, with a suitable shed and a fire-place in it, and other conveniences for the purpose. Thus the shepherd will be able to attend them at all hours of the night, to give his assistance when required, and to take all needful care of them.

It often happens, during the lambing season, that ewes are severely handled, through the largeness of the lambs, or their being in a wrong

position, so as to bruise or tear the parts through which they pass. It will be necessary to have in readiness, for use at these times, the following oils:

RECIPE No. 88.

Venice turpentine,	two ounces;
Barbadoes tar,	two ounces;
Spirits of turpentine,	quarter of a pint;
Linseed oil,	half a pint;

Mix them well together; then add the following,

Mel-Egyptiacum,	one ounce;
Oil of vitriol,	quarter of an oz;
Aquafortis,	quarter of an oz.

Mix these together; then add,

Tincture of myrrh,	quarter of a pint:
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Shake the whole well together, and put them in a bottle for use.

Whenever it is necessary to use these oils, let the bottle be well shaken, and convey one or two table-spoonsful into the vagina, or sheath, either by the hand, or with a spoon. They warm or stimulate the parts affected, and prevent or cure the gangrene or mortification in those parts, as well as in other fresh wounds.

When ewes are injured by a difficult parturition, the following drink will prove of excellent service:

RECIPE No. 89.

Peruvian bark, powdered,	one dram;
Ginger, ditto,	one dram;

Mix them in half a pint of warm gruel, and add

Treacle,	two spoonsful;
Brandy,	one table-spoonful:

Mix, and give it new-milk warm.

It is frequently necessary to repeat this drink once or twice a day, where the animals have received much injury, or where they have been reduced by indifferent or scanty keep before the lambing season. In every case, where nature appears to be in a languid and debilitated state, these powders are unequalled for their restorative quality.

The gruel necessary to be given to ewes at the time of lambing, should be made as follows:

RECIPE No. 90.

Linseed, fresh powdered,	half a pound;
Oatmeal,	one pound;

Boil a sufficient quantity of this mixture in water, as if made of oatmeal only; then add

Gin, or brandy,	one tea-spoonful;
Sugar,	one tea-spoonful.

This will give excellent support to the animals, and will nourish and heal their insides, through the richness of the linseed in combination with the oatmeal. About half a pint, to a pint, of this gruel, may be given at the time, and repeated twice in the day, if necessary.

If the ewe be deficient in milk, (a circumstance which occasionally happens at the time of lambing, for want of better support,) let the following drink be given, which will be found greatly to assist the secretion of that fluid.

RECIPE No. 91.

Aniseeds, sweet fennel seeds,
carraway-seeds, and grains of
paradise, fresh powdered, each, one dram.

Mix, and give it in half a pint of warm gruel.

This drink acts as a cordial, and powerfully promotes the milky secretions, at the same time it warms and stimulates the stomachs and intes-

tines. But to insure success, take care the ingredients are all fresh and good. Never buy seeds in powder, but always pound them yourself.

Of the Diseases to which Lambs are subject.

Lambs are in their infancy subject to a variety of diseases, arising either from them or their dams being insufficiently kept, or from the cold or damp state of the weather.

If the weak state of the lambs proceed from poor keeping, support must be given them; this may be done either by putting them to suck other and stronger ewes, or by giving them cow's new milk, warm as it comes from the animal; but if the complaint arise from cold or damp weather, in addition to the warm milk, the drink No. 92 should be given as afterwards directed, and the lamb should, with its dam, be housed and carefully nursed.

Sometimes, though rarely, the ewe has too much milk: when this is the case, it is apt to coagulate and form into a hard substance in the maw, by which many of the best lambs are frequently carried off.—This is similar to the *cords* in calves, (see page 132) and may be arrested by :

a similar treatment.—With respect to the quantity of medicine to be given, a fifth or sixth part of that directed for the calf, may be safely administered to the lamb.

Diarrhœa, or excessive Looseness in Lambs,

Is a destructive malady, and most fatal to lambs under a week old; it often seizes them at about twenty-four hours old, and carries them off in six hours after: it mostly, however, lasts two days, in which time it kills five out of six that are attacked with it, except proper remedies are administered at its very onset.

Symptoms.—This disorder commences with frequent purging, and severe griping pains; and the lamb is generally much blown up on its attack from wind in the stomach and intestines: If no relief be given, the disease becomes stationary, and the stools are attended with a copious ejection of the mucus of the intestines, together with a griping pain, while the animal pines rapidly away.

Remedy.—The cause from whence the complaint originated, must be ascertained, if pos-

sible. If it proceeded from cold, or want of proper support, new milk warm from the cow should be given, the lamb should be kept warm, and the following drink administered :—

RECIPE No. 92.

Dover's powders,	twelve grains;
Compound cinnamon powder,	two scruples;
Prepared chalk,	one scruple:

Mix, and give it in a little warm new milk, thickened with starch to the consistence of gruel.

If the ewe's milk seems to disagree with the lamb, it will be proper to change her diet, and, in some cases, to feed the lamb altogether on cows' new milk, warm; not neglecting, however, to milk the ewe. The ewe should be also purged once or twice by giving the following:

RECIPE No. 93.

Epsom salts,	two ounces;
Elixir of vitriol,	a small tea-spoonful:

Mix the salts in a small quantity of water; then add the elixir, and give it.

The drink No. 92, is proper for a lamb of from twenty-four hours to a week or two old;

it should be repeated every three or four hours, until the symptoms be greatly abated, and then, should the diarrhœa continue, once a day will be sufficient.

After giving one or two of the above drinks, it is often of great use, in severe cases, to add two or from that to four grains of calomel to it, and repeat this every day for two or three times; or a table-spoon *half filled* with castor oil may be given with the drink.

A strong lamb, six weeks or two months old, will require the following, instead of No. 92.

RECIPE No. 94.

Dover's powders,	half a dram;
Compound cinnamon powder,	one dram;
Prepared chalk, two scruples, to	one dram:

At this age, however, the diarrhœa is commonly not so fatal; and, if taken in time, will generally yield to the following draught—

RECIPE No. 95.

Castor oil,	one table-spoonful;
Laudanum,	forty to sixty drops;

Mix in a little warm weak gin and water, and give it.

When *diarrhœa* attacks lambs that are weaned, and from that time to six or seven months old, it mostly arises from the nature of their food, or from taking cold. A change of pasture will often in this case prove a remedy: Mr. Clayton, in his treatise on the diseases of cattle, says, he knew frequently that when lambs of this age, afflicted with diarrhœa, were removed into a stubble corn-field, this at once put a stop to the over-purging. To animals of this age, the following cordial drink may be occasionally administered with advantage:

RECIPE No. 96.

Prepared chalk,	eight ounces;
Aniseeds, fresh powdered,	one ounce;
Carraway-seeds, powdered,	one ounce;
Ginger, fresh powdered,	one ounce:

Mix these ingredients well together in a mortar, and once or twice a day mix a small table-spoonful of the mixture in a little warm milk, thickened with flour or starch; give it, together with forty drops of laudanum; and in obstinate cases, repeat the dose again in the same day. By a careful adherence to this simple treatment, a speedy cure may be generally expected.

Costiveness in Lambs,

Is mostly accompanied with slight symptoms of fever; the lamb appears dull and heavy, and eats little; after its recovery, the wool generally comes off.

Remedy.—The cure is easy and simple; give the lamb from half an ounce to an ounce, according to its age, of Epsom salts, dissolved in a little water; or a table-spoonful or two of castor-oil, which the shepherd should always have by him. If the lamb be much affected, bleeding will be proper. Should it not take sufficient support, give it warm water-gruel, which will not only nourish it, but cool the body, and moderately relax the bowels.

Staggers in Lambs.

This disorder attacks the most thriving, and often proves fatal, especially to those about three or four months old.

Symptoms.—The lamb is giddy, falls down, and in general cannot rise again without help,

or until it is relieved, convulsions sometimes succeed, and the lamb seems much distressed.

Remedy.—As this disease proceeds generally from a determination of the blood to the brain, bleeding must be had instant recourse to, and the following purgative drink be afterwards administered.

RECIPE No. 97.

Epsom salts,	one ounce ;
Elixir of vitriol,	half a dram ;

Dissolve the salts in a little water, add the elixir, and give it the lamb at once.

After the operation of the drink, the following ball should be given to the lamb, taking care to keep it well housed :—

RECIPE No. 98.

Calomel (according to size or strength)	3 to 6 grains ;
True gentian, in powder,	half a dram ;
Syrup, enough to make a ball:	

This ball, with the purgative drink, may be given to lambs whenever they are indisposed, if the complaint be not attended with purging.

OF THE
DISEASES OF SHEEP.

SHEEP, in their digestive organs, are very similar to the cow, except in being more tender, and liable to disorder, though naturally as hardy as most other animals.—A wet soil, and moist atmosphere are generally the *exciting cause* of disease in sheep as in other cattle, and a debility of the nervous system is the *predisposing cause*: the nervous system becomes weakened in various ways, such as change of climate and soil, and by negligence in breeding and rearing: the draining of land, therefore, which has taken place so extensively in all parts of England, promises to be of great advantage in the rearing of sheep, by drying the land and consequently preventing the mass of exhalations which moistened the atmosphere around.

With respect to the prevention of disease in sheep, the same remarks are applicable to sheep as have been used in respect to neat cattle; we will therefore on this head refer the reader to that part of our treatise.

Red Water in Sheep.

This disorder is of the inflammatory kind, and prevails most at the latter end of the year, or during the winter, among sheep feeding on turnips, or on succulent grass. It attacks those sheep first which are in the best condition; and if no relief be obtained, they generally die in less than twenty-four hours.

Cause.—Inflammation and consequent mortification of some particular parts of the body, as the kidneys, or other intestines; the inflammation is sometimes considerably increased by the intestines becoming loaded with sand and gravel while feeding on turnips. Whenever this disease makes its appearance in a flock of sheep, no time must be lost in putting a stop to so destructive a malady, as the loss is otherwise very considerable.

Symptoms.—The sheep appears dull, and loiters behind the rest of the flock,—the appetite diminishes, and the belly becomes a little swollen, as though it had overgorged itself.

Remedy.—Bleed the sheep as soon as the disease shews itself, and then administer the following medicine:—

RECIPE No. 99.

Epsom salts, three ounces ;

Nitre, in powder, two ounces ;

Pour a pint and a half of boiling water upon the salts,
and when new-milk warm, add

Spirits of turpentine, two ounces ;

Bole ammoniac, in powder, quarter of an ounce;

Mix, and *shake them well together at the time of giving.*

The dose is from three to four table-spoonsful.

When it is necessary to administer this medicine to a number of sheep, they must be removed from the turnips, or whatever they are feeding on, and put into a pen or fold yard for an hour or two before it is given. A small horn, kept for similar purposes, should have poured into it the quantity proper for each sheep, which should then be given. This is the best method of giving medicine to sheep, where many of them require it at one time. They must be kept from food two hours after the medicine has been given, either in a fold yard or a pen; after that

time they may be turned out into a bare dry pasture.

When this disease is so severe, that several sheep die daily, the medicine must be repeated every third day, three or four times, or more, if necessary: their diet should also be changed, and themselves removed to a more dry and elevated situation.

This medicine, if attended by bleeding, will be found a powerful preventive to most inflammatory complaints, which sheep are liable to, while feeding on turnips, or in a luxuriant pasture.

Resp, Gargut, or Blood,

Is a complaint very similar to the black leg in young cattle. It is a dangerous disorder, and so suddenly fatal, that sheep are often found dead from its attacks, without any previous symptoms having been observed.

Cause.—A plethora, or overflowing of the blood, is most commonly the origin of this disease, arising from feeding on turnips, or succulent food: it is mostly prevalent in low situa-

tions, and in woodland pastures where the air is damp.

Symptoms.—The sheep is dull and languid, and moves unwillingly; the eyes appear of a yellowish hue or inflamed; the animal is mostly unable to void its urine, and if it does, it is tinged with blood.—If no relief be afforded, a lethargic dulness comes on, and the sheep dies without a struggle, in consequence of a mortification in different parts of the body. In death, the flesh is frequently discoloured, and the whole body emits a peculiar offensive effluvia.

Remedy.—The moment the symptoms of the disease are observed, the whole of the flock should be bled, particularly the infected ones; the following purgative should then be administered and the food changed; or, if in pasture, removed to a thinner bite of grass.—

RECIPE No. 99.

Epsom salts,	two ounces;
Spirit of turpentine,	a tea-spoonful;
Powdered ginger,	a tea-spoonful;

Dissolve the salts in three ounces (or not quite a gill) of boiling water; when new-milk warm, add the turpentine, and give it. Repeat it next day, if necessary.

Hydrocephalus, or Giddiness.

This disease is also known by the various appellations of *Sturdy, Water on the Head, Dropsy of the Brain, Turnsick, &c.*—It is mostly caused by exposure to inclement weather without shelter, or through feeding in low marshy grounds, where the air is moist, which obstructs the perspiration, and by that means produces an increase of the watery fluid in the mass of blood. Young sheep are mostly subject to its attacks.

Symptoms.—When a sheep is affected with this disease, it appears stupid, turns round and round, and the eyes seem frequently as though fixed in their orbits. As the water on the brain increases in quantity, the sheep is more affected, the vision of one or both eyes becomes impaired, or lost, the animal staggers on one side, if you drive it a short distance; different parts of the body is seized with palsy; and at length it dies quite emaciated.

We have given the above, as the most common symptoms of hydrocephalus; but the disease occasionally puts on very different appearances; for instance, under some variations of

the disease, the animal, when hurried forward, instead of turning round, appears lame in the hind quarters,—generally on one side only, and that most commonly the *left*; in this case, in moving forward quickly, it goes nearly straight; but the left hind quarter is so inclined, as to make it appear somewhat crooked.—In the early stages of the disorder, the turning round is not so remarkable, unless the animal be hurried; but at a latter period, it does it constantly in attempting to move forward, and at last becomes so completely palsied, that he falls down, and is unable to get up, and in that situation generally dies.

Remedy.—The cure of this disorder is difficult, indeed it cannot be accomplished but by a regular practitioner, or veterinary surgeon.—The most successful plan is that performed in Dorsetshire, and consists in the operation of perforating the skull by a small puncture, and thereby discharging the water from the brain; a moderate dose of the Epsom or Glauber salts is then given, and the sheep is occasionally bled in the eye vein, or in the neck vein. Or the recipe No. 99, may be administered after the ani-

mal has been bled with good effect.—If any objection exist against the assistance of a good veterinary surgeon being called in, the sheep may be bled in the eye vein, or the neck vein, and two ounces of Epsom salts occasionally given, or the recipe No. 99, with advantage; and in this case, it will be best to kill the animal or send it to market; there being nothing, especially in the early stages of the complaint, to operate in any way to the injury either of the flavour or quality of the flesh, except that the animal daily wastes away under its attack.

Blast, or Bursting.

Is of the same nature as the *hoven* in neat cattle, and arises from a similar cause, namely, from overfeeding upon clover, or any other succulent food, or over rich pasture, particularly the young shoots or blades of grass in the spring or autumn of the year.

Symptoms.—Sheep affected in this manner, swell almost to suffocation, lie down with their legs stretched out, or stand still scarcely able to breathe, and, unless relieved, die.

Remedy.—Some farmers stab their sheep in the side, and let out the confined air; this, however, is a very objectionable mode of treatment, as every time increases the danger, and the cure then becomes more doubtful. The best method is, to pass a probang down the animal's throat, into the stomach, and the confined air will then rush out.—The following drench, No. 100, should then be administered, and the sheep moved about a little: as soon as the complaint is a little relieved, remove the animal into the barest pasture, and there let it remain until the digestive faculty is restored. A clyster may also be given with good effect.

RECIPE No. 100.

Common salt,	one ounce;
Solution of potash, (as prepared for the cords in calves)	one or two tea-spoonsful;
Castor or sweet oil,	two table-spoonsful;
Water,	eight ounces:

If the animal be griped, or in much pain, thirty or forty drops of laudanum may be added; or two or three tea-spoonsful of anodyne carmi-

native tincture will be of service to remove the pain.

Catarrh, or Cold.

Extreme exposure in an enclement atmosphere, long-continued rains, and sudden vicissitudes of weather, are the usual causes or origin of colds both in sheep and neat cattle. Of these affections, catarrh is the severest, and it sometimes destroys great numbers of sheep.

Symptoms.—Heaviness in the animal's appearance and movements, the eyes watery, and the nose runs, and is almost glued up with a thick matter, which must be cleaned away, or the respiration of the breath will be impeded. The complaint is accompanied with a cough; the animal seems starved, walks stiff, and eats very little.

Remedy.—In severe cases, a pint or a pint and a half of blood may be taken from the neck vein; where the symptoms are urgent, this may be repeated daily for two or three days, only reducing the quantity taken each time.—The following drink should be given after bleeding:—

RECIPE No. 101.

Epsom salts,	one ounce and a half;
Nitre,	one dram;
Cummin-seeds, in powder,	one large tea-spoonful;
Treacle,	one table-spoonful;

Put them into a pitcher, pour upon them four ounces (or one gill) of boiling water; stir the whole together, and give it when new-milk warm.

In obstinate cases, this drink may be repeated every alternate day. The pasture should also be changed; or the food altered in quality or quantity.

Goggles.

This is an inflammatory affection of the brain, originating in an overflowing of the blood.—Sheep of all ages are equally liable to its attacks, especially after being turned into a rich luxuriant pasture.

The symptoms vary much, according as the brain is more or less affected. Lambs seized with the goggles, sometimes run about quite frantic, and continue doing so, until exhausted; they then drop down, and are unable to rise

again, from being deprived of all use of their limbs. In this case, immediate bleeding and a removal to a bare pasture, almost invariably effects the cure.

When the substance of the brain is more particularly the seat of the complaint, the sheep becomes stupid, and loses the use of one side, or of the hind extremity. This stage of the disease resembles that of the advanced stage of hydrocephalus; and must be treated as such; but it is generally incurable.

The Yellows.

This complaint is most prevalent in low situations, where the grass is of an indifferent quality, and the air moist.—It is often very fatal among sheep, and carries off great numbers out of a large flock, unless promptly attended to, and its progress arrested.

Mr. Clater, in his treatise on cattle medicine, gives a case of *yellows* in which he was called in to assist.—“I attended,” says he, “two flocks that were seized with this complaint, soon after being turned into a fresh luxuriant pasture; the one on red clover, and the other on rape.—Here they

began to thrive, but numbers of the sheep were soon attacked with the *yellow*s from the nature of the food, and for want of proper exercise in obtaining it: many of them died. The disease, however, instantly disappeared when proper remedies were prescribed, and their exercise increased."

Symptoms.—The white of the eyes, the mouth, and other parts of the body become tinged with a yellowish hue. The animal appears dull; and, as the disease advances, has a very great aversion to move; its urine is also of a dark colour.

Cure.—The affected sheep must immediately be turned into a barer pasture, or have a less quantity of the food upon which they were feeding, given in a bare field, and dispersed or laid at moderate distances, so that the animal necessarily employs some exercise to obtain it: the sheep, then, as well as the whole of the flock, should be bled, and a mild purgative, (as No. 102) administered. To render the cure more complete, let the cordial drink (No. 91) be given after the above has operated.

RECIPE No. 102.

Epsom salts,	an ounce and a half;
Ginger, powdered,	a large tea-spoonful;
Elixir of vitriol,	a small tea-spoonful.

Pour a quarter of a pint of boiling water on them, and, when new-milk warm, give it.

The Rot,

Called also the *Blain*, or *Bane*, is the most fatal disease to which sheep are subject; it has carried off vast numbers, and has occupied general attention. It is now generally considered as an hereditary malady; that is, the disposition or liability to the disease is hereditary, and consists simply of constitutional debility. This disposition is, however, so necessary a condition to the formation of the disease, that many veterinary surgeons consider that, were the system not thus predisposed, the exciting causes, which are cold and moisture, would not produce the rot, but merely cause catarrh, or cold. It is, therefore, absolutely essential, that in the choice of sheep for breeding stock, they should be selected from flocks which have not been visited by this pestilential disease.

Watery meadows being the most productive source of the rot, the sheep should be removed to the more elevated parts of the land; and when the disease is observed to be coming on, to a more elevated situation; and if there be good pasture, and the sheep be moderately well attended to, a cure will apparently be effected; we say apparently, for all the best cattle doctors, and writers on the subject agree on this point, that it never will be eradicated from the system; but remain in a latent state in the constitution, till a similar exciting cause again brings it forward in a more fatal form. Two things are therefore essential with respect to sheep which have been affected with the rot; the first is, that on no account should those be put up to breed, in which the disease has positively appeared; and the second is, to kill the sheep as soon as its recovery is so far attained, as to be in a fit state for food.

Dr. Harrison, a well-known writer on cattle medicine, has given to the world a description of the rot, so accurate, that nothing can be added to it. He says—

“When in warm, sultry, and rainy weather, sheep that are grazing on low and moist lands.

feed rapidly, and some of them die suddenly, there is reason to fear they have contracted the Rot.

“This suspicion will be further increased, if, a few weeks afterwards, the sheep begin to shrink, and become flaccid in their loins. By pressure about the hips, at this time, a crackling is perceptible; now, or soon afterwards, the countenance looks pale, and upon parting the fleece, the skin is found to have changed its vermilion tint for a pale red, and the wool is easily separated from the pelt (skin).

“As the disorder advances, the skin becomes dappled with yellow or black spots. About this time, the eyes lose their lustre, and become white and pearly. To this succeed debility and emaciation, which increase continually until the sheep die: or else, *ascites*, and perhaps general dropsy, supervenes before the fatal termination.

“These symptoms are rendered more severe by an obstinate purging, which comes on at an uncertain period of the disorder. In the progress of the complaint, sheep become what the graziers call *checkered*, that is, affected with a swelling under the chin, which proceeds from a fluid in the cellular membrane under the throat.

“ In five or six days after contracting the rot, the thin edge of the small lobe of the liver becomes of a transparent white, or blueish colour, and this spreads along the upper and lower sides, according to the severity of the complaint. In severe cases, the whole peritonæum investing the liver is diseased, and then it commonly assumes an opaque colour, interspersed with red dark lines or patches.

“ When the first stage of the disease is over, flukes begin to appear in and about the common duct of the liver, and in the gall-bladder. At first, their number is small; but as the disease advances, they increase; and, before death, become very numerous. In the last stage of the disease they are often to be found in the stomach, as well as in the bowels and liver, and may produce either inflammation, or dropsy; or both these disorders. It sometimes goes off, on change of pasture, and sometimes terminates in abscess, or in hard indolent tumours.

“ When rot produces abscesses in the liver, or lungs, the animal generally lingers for some time; and at last dies of consumption. The most common termination of this disease, is in *schirri*, or, what shepherds call, knots in the

liver; and the first attack is, unfortunately, so very insidious, that the disorder is scarcely observable before the animal begins to waste and lose flesh."

Remedy.—Clater, the author of a work on cattle medicine, gives the following remedy, and directions for subduing and arresting the progress of this fatal disease; he says, farmers, whose lands lie in a low situation, and whose flocks are subject to this disease, will find the recipe of infinite value:

RECIPE No. 103.

Nitre, in powder,	six ounces;
Ginger, fresh powdered,	four ounces;
Colcothar of vitriol, fine powder,	two ounces;
Common salt,	three pounds and a half;
Boiling water,	three gallons.

Pour the water hot upon the ingredients.—Stir them, and when new-milk warm, divide it into bottles, each holding more than one quart, a quart of the mixture being the quantity to be put into each bottle; to each of which bottles must now be added, three ounces of spirit of turpentine.

It must always be well shaken when given to the sheep.

To administer it with proper effect, the following directions *must be strictly attended to*:

Keep the infected sheep from food all night; on the following morning give to each sheep two ounces, or two table-spoonsful of the above mixture; *remembering first to shake the bottle well the moment before pouring it out.* To those which are weak and much reduced by the disease, one half, or three parts out of four may be sufficient for a dose. Keep them from food three hours after giving the medicine, and then turn them into a dry pasture.

It will be necessary to repeat the medicine every fourth day for three times, observing the same rules. But where only half the quantity has been given, it will be proper to repeat it every second or third day for six times.

Every shepherd should be provided with a small horn, containing a proper dose: this will save considerable time and trouble, particularly when it is necessary to give the drink to a number of sheep at the same time.

Sheep take salt readily, and if a little was occasionally given them, or mixed with their food, it would perhaps tend greatly to prevent

the visitation or recurrence of this disease; but a greater source of prevention will be found in keeping sheep in more elevated situations, where the bite is not so luxuriant, but where there is ample food for all the sheep disposed to search for it, and in not exposing them too much in very damp cold weather to the influence of the atmosphere.—The draining of land, now become so universal, has in this respect done much towards eradicating this pestilential disease; and conduces materially to the preservation of the health of sheep, as well as of every other kind of animal.

The following recipe will be found very useful in cases of rot.

RECIPE No. 104.

Tar,	four ounces;
Oil of turpentine,	four ounces;
Salad oil,	one pint:

This may be given in the same manner, and the animal should be treated in the way as is directed for administering recipe No. 103.

The Scab, or Ray.

This disease is very common in several parts of the kingdom, particularly in Nottinghamshire,

and is very contagious; for if one sheep be infected, it will quickly communicate to the rest of the flock, and it takes considerable trouble to eradicate it. A cautious attention should therefore be used in introducing fresh sheep into the flock, lest any of them should be infected with this pestiferous complaint.

Symptoms.—The scab is well known, and the symptoms so decisive, as to be very readily told. It is first discovered by the animals rubbing themselves against every post, gate, bank, or other similar place, and they are frequently seen to pull the wool off with their mouths.

The scab is a disease which at first only affects the skin with a scabby eruption; it is, however, necessary to remove it, or the system will become affected, and, unless care be taken, the sheep will fall a victim.

Remedy.—The following ointment is confidently recommended as being very superior to tobacco-water, or any of the usual washes, particularly as it not only cures the disorder, but also promotes the health of the animal, and encourages the free growth of the wool.

RECIPE No. 105.

Mercury (or quicksilver),	four ounces;
Venice turpentine,	two ounces;
Spirit of turpentine,	half an ounce;

Work them well together in a marble mortar, until the mercury is thoroughly incorporated, which may be complete in about five or six hours; then take two pounds and a quarter of hog's lard, melt it over a slow fire, and when new milk warm, add it to quicksilver, and keep it constantly stirring until it grows stiff.

It may appear to many, that the labour of preparing this ointment is very considerable, but it is essential, as the good effects expected by its application wholly depend on the perfect unison of the quicksilver with the other ingredients.

It is necessary to be very cautious in using this ointment, as a want of the proper knowledge of administering it may place the life of the animal in danger.—One pound is sufficient to dress seven sheep; and, if but slightly infected, it will suffice for ten.

The ointment should be of a moderate consistency, so as to spread freely; if too stiff, it will be difficult to rub it on the part affected; if

too thin, it will run, and not do the service intended. This may be regulated by the following means: if in summer, leave out half a pound of the lard, and substitute the same quantity of black resin; dissolve it in the lard, and add it to the mercury: this will stiffen it to the requisite consistency.

In using this ointment, divide the wool on the back from the head to the tail, so as to expose the skin; then rub a small quantity of the ointment upon the skin, from head to tail; now divide the wool on each side, and rub the remaining portion of the ointment well in. If the shoulders or thighs of the sheep be affected, they should be particularly attended to, and well rubbed in.

The most proper time for dressing sheep in this manner, is about Michaelmas, or any time in October, preferring dry weather for the purpose; they should not be dressed too early in the spring, when they have been neglected in autumn, but should first be allowed to gather a little strength.

Sheep Lice and Ticks.

When sheep are not in a thriving state, or are

kept in poor condition, they are then very liable to these vermin: they are of great detriment to the sheep, preventing them from thriving, and cause them to injure their fleeces, by rubbing their wool off against fences, or tearing it off with their mouths.

Remedy.—The recipe No. 105, for the mercurial ointment, is the best that can be prescribed for this filthy pest; as it not only effectually kills the vermin; but it also enters into the system, and purifies the blood. One pound of ointment is sufficient for ten sheep.

To prevent the Fly.

In warm, summer weather, sheep are often sadly teased with flies; and their annoyance gives them so much trouble, at times, as to cause them to run against hedges or into ditches, or dykes, and injure their condition, by preventing them feeding when they ought to make good progress.

Many remedies for the prevention of this annoyance have been recommended; and as far as it is practicable for any one to be successful, the following may be depended upon:

RECIPE No. 106.

White lead,	in fine powder,	eight ounces ;
Flowers of sulphur	ditto,	eight ounces ;
White arsenic,	ditto,	eight ounces ;

Mix them well together, in a marble mortar for use.

This quantity of powder will be sufficient for a flock of thirty sheep. To ascertain the proper quantity of each, divide it into equal parts, and paper each by itself; by which means you will apportion a proper share to each sheep.

In using it, let one person take hold of the sheep by the head, and another have a packet of the above powders, put into a pepper-box, held in the right hand, with a stick in the left. Draw the stick gently from head to tail, and with the other hand dust on the powders close after the stick. The use of the stick in this application is, that it presses down the wool while the powders are dusted on, and as the wool rises, it shakes and spreads the powders. Then sprinkle a small quantity of water from head to tail, and draw the stick backwards and forwards two or three times, to make the powder adhere to the wool.

To those who object to the use of arsenic, the following will be equally serviceable, but it will

require at least double the quantity to effect the same purpose:—

RECIPE No. 107.

White lead, in fine powder, eight ounces;
Flowers of sulphur, ditto, eight ounces;
White hellebore, ditto, eight ounces;

Mix these well together in a marble mortar, then add a quarter of an ounce of the essential oil of wormwood, and rub it well on the powders.

Sore Heads.

Sheep that run in lanes or woody districts, particularly in summer, are very liable to sore heads, through striking or rubbing them either against any butting object, or with their hinder feet, when pestered by the flies; a wound is thus made, which being aggravated by the same cause which produced it, soon becomes dangerous, unless a remedy be applied.

Oil of hartshorn, oil of coal, spirits of tar, and many other similar things, have been used, and with various success.—Preparations of tar have been found useful.—The following ointment, will be found in all cases to produce the desired cure:—

RECIPE No. 108.

Black pitch,	one pound;
Tar,	eight ounces;
Black brimstone, or native sulphur, in } fine powder	eight ounces:

Put these ingredients in an iron pot; just give them a boil over a slow fire, and as soon as the sulphur begins to unite with the rest of the ingredients, *instantly take the whole off the fire, or it will swell, and run over into the flames.*

There are two ways of applying this ointment, or plaister, either of which will produce the desired result:—the first way, is, perhaps, the best.

Procure, or make of any kind of soft leather, or of strong brown paper, caps of proper shape for laying on the head of the sheep, a cap for each sheep. When the ointment is melted, spread it thickly with a small paint-brush on the cap, and apply it to the head. Evening is the best time to do this, as there is then less chance of knocking them off; and, by the morning, the caps are generally set fast on the head.

Or,—having melted the ointment, and taken it from the fire, stir it about till new milk

warm, then spread it on the sore part of the head, either with a wooden spoon, or a spatula; and immediately apply a little short wool upon it, in the same manner as when a charge is applied to any part about a horse.

In very hot weather, this ointment is apt to be too thin to adhere to the wound: in this case about four or six ounces of black resin added to the other ingredients, will give it the desired consistency.

Maggots.

Sheep, in summer, are mostly subject to these vermin; most shepherds understand the symptoms which take place when the fly has struck the sheep; but as our book is equally intended for the information of those who do not, as for those who do, we shall give the symptoms in this case as well as in all others.

Symptoms.—As soon as the maggots make their appearance on any part of a sheep's body, the wool on that part becomes moist, or wet; the sheep holds down its head, shakes its tail, and runs about from place to place; and if permitted to continue a few days in this state,

must unavoidably fall a victim to these kind of vermin.

Remedy.—The mercurial ointment, No. 105, page 308, may be used generally with good effect for the maggot; but the following mixture will be found good even in the worst of cases, while in point of cheapness it is decidedly preferable to all others :—

RECIPE No. 109.

Mercurial sublimate, in powder,	one ounce ;
Spirit of sea-salt,	one ounce ;
Boiling water,	three quarts :

Mix these together in a stone bottle; and, when cold, add spirit of turpentine, one pint :

Mix, and they are ready for use. *Shake it well every time this mixture is used.*

The best method of using this mixture is as follows : shake the bottle well, and instantly fill a quart wine bottle with it, before the turpentine can separate from the other ingredients; cork the bottle up, make a hole through the middle of the cork, and through the hole pass a goose-quill open at both ends.—By this simple contrivance, you may at any time force out a

any time force out a sufficient quantity on the affected part, without waste.—If an ounce of assafœtida be put into the quart bottle with the mixture, it will prove the means of preventing the fly from again striking the same part.

The Foot-Halt and Foot-Rot,

Have by many persons been considered as two separate diseases; but are, in fact, the two stages of the same disorder, the foot-halt being the first stage; and the foot-rot, the second, or confirmed stage. It is discovered by the animal walking lame, and must be soon relieved, or its cure becomes a slow and tedious process.

Remedy.—Let the infected sheep be taken from the pasture, and put into a dry fold-yard, after it has stood here about one hour, take a brush, similar to that used for cleaning teeth, and brush all the dirt from between the claws; then dip a wooden skewer into butter of antimony, oil of vitriol, aquafortis, or spirits of salt, and with either of these anoint the diseased part all over; and let them stand dry for one hour. If properly done, and taken in good time, one dressing will generally be found suffi-

cient.—Butter of antimony is the most powerful of these ingredients, and seems to have the best effect in the greatest number of cases. A second dressing is rarely required, except proud flesh has formed; in which case the wound must be dressed every third day, till healed.

If the disease be not checked by these means, but gets evidently worse, and large excrescences, or superfluous flesh, grow out betwixt the claws, the proper way then to proceed will be to cut it out with a sharp knife, *taking care to cut out only the superfluous parts*. The operator before he begins must be provided with the following essentials, viz.—pledgets of tow, old linen, a piece of tape, and the following powders.

RECIPE No. 110.

Blue vitriol, in fine powder,	half an ounce;
White vitriol, ditto,	half an ounce;
Alum, ditto,	half an ounce;
Bole armoniac, ditto,	half an ounce:

Mix them together, and they are ready for use,

Dress the wound or place whence the proud flesh was taken, with the above powders, by covering it quite thick therewith; secure them on

properly with the tow, old linen, and tape. This will stop the bleeding, and prevent the proud flesh rising. This dressing should be repeated every other day for three or four times. Before either a dressing or operation is performed, always cleanse the foot free from dirt.

Wounds.

Sheep are occasionally wounded, though not so often so as are neat cattle; dogs worry them, particularly in the vicinity of large towns. The following mixture should be kept ready made; it will be found very serviceable in all such cases; and is particularly useful for ewes that may be torn or hurt during the yeanning season. It is also proper for all kinds of bruises in horses and neat cattle. The parts affected should be well rubbed once a day, taking care to cleanse them from all impurities before the mixture is applied.

RECIPE No. 111.

Linseed oil,	one pint;
Oil of vitriol,	two ounces;
Spirits of turpentine,	four ounces;
Oil of origanum,	one ounce,
Compound tincture of myrrh,	four ounces:

This mixture must be carefully made as follows:

First, put about one-fourth of the linseed oil in a glazed pipkin, and add to it by degrees, *keeping it constantly stirred till mixed*, the oil of vitriol: then add by a little at a time, *still keeping it stirred*, the spirits of turpentine, and afterwards the remainder of the linseed oil: lastly, add the organum and tincture; mix well, bottle it, and it is ready for use.

It is a valuable mixture, and will effectually prevent gangrene, or put a stop to mortification.

Diseased Eyes, or Blindness.

Whole flocks are sometimes affected in the eyes,—the disease may therefore, in some measure, be considered as an epidemic: it is, however, brought on by fatigue and subsequent exposure in a damp or bleak situation. It prevails mostly in the north of England; and generally first attacks those in the best condition. The principal inducing cause, or that which may be said to predispose the animal to the complaint, is a redundancy of blood in the system generally, but particularly so in the head.

Cure.—Bleed below the eye, and then give the following purgative drink:

RECIPE No. 112.

Epsom salts, two ounces;
Ginger, powdered, one large tea-spoonful;
Treacle, one large table-spoonful;

Pour a quarter of a pint of boiling water upon these ingredients in a pitcher; stir the whole well together, and give it when new-milk warm.

This, by removing the cause of the disease, will very soon cure the eye itself: as, however, a considerable degree of inflammation sometimes affects the eyes, the following powders will be found useful.

RECIPE No. 113.

Sal-ammoniac, powdered, two drams;
Lump sugar, ditto, two drams;
Lapis calaminaris, ditto, two drams.

Mix them well together, and put them in a bottle, which keep closely corked for use.

There are several ways of applying these powders, but either will answer: some put a small quantity on a sixpence; and while another holds the eye open, the powders are gently blown in, and the head held for a minute or two. Others

mix four ounces of rose-water with the powders, and pour a small quantity into each eye; while others mix them with honey of roses, and with a feather anoint the eye therewith.

Debility and Indigestion.

From several causes, as over-driving, worrying by dogs, or overloading their stomachs, sheep are, in summer, frequently attacked with the primary symptoms of inflammation, debility and indigestion: if the attack be that of debility merely, the following, being a warm and stimulating medicine, will restore nature to the exercise of her proper functions: but if indigestion accompany it, and particularly if inflammatory symptoms appear, bleeding must be had recourse to, in addition to the following draught.

RECIPE No. 114.

Aniseeds, fresh powdered,	one dram;
Carraway-seeds, ditto,	one dram;
Peruvian bark, ditto,	half a dram;
Ginger, ditto,	half a dram;
Treacle, (or sugar)	half a table-spoonful;
Gin,	one table-spoonful.

Mix, and give it in a little warm water.

Repeat it, if necessary, even twice in a day.

Inflammation.

When from either of the causes mentioned in the previous disease, inflammation either of the heart, the lungs, or the intestines, has actually taken place, as will often be the case when the animal is fat and driven a considerable distance, a more active medicine should be applied to, and the sheep should be plentifully bled in the neck, or below or above the eye, as may be most likely to touch the seat of the disease; afterwards, the draught No. 112 should be given, and repeated the next day, if necessary.

Diarrhœa, or Scouring.

This disease often attacks sheep in the spring season, and proceeds from eating the rich young springing grass, when perhaps they have been scantily, and even badly kept during the winter. When this is the case, remove those into a bare pasture, and bring them by degrees to the better. This generally cures the disorder; but to accelerate the recovery of the animal, give it the following mixture daily, for one or two successive days.

RECIPE No. 115.

Peruvian bark, in powder,	one dram;
Root of ginger, ditto,	one dram;
Prepared chalk, ditto,	one dram:
Brandy, (or gin)	one tablespoonful:

Mix, and give it in a little warm gruel; and, if the disease be very severe, add a teaspoonful of tincture of opium.

Inflammation in the Udder of Ewes.

Ewes at the time of yeanning are very subject to this complaint, which is the same as the downfal among the cows: being kept too well before the time, will often induce an inflammatory state of the udder: if cold be then taken, one or more quarters of the udder becomes swollen and tender, and the milk is then curdled and diminished in quantity.

At the time of yeanning, ewes should have their udders carefully examined; if the milk pass freely on pressure of the finger and thumb, all is safe; but if the udder be sore and tumified, and the milk altered in colour and smell, there is danger: the inflammation must be speedily reduced, or the affected quarter will be lost.

Remedy.—First take about a pint of blood away from the ewe, and give her the draught No. 112; then draw away all the milk you can, rub the parts affected *well two or three times a day* with the following oil:—

RECIPE No. 116.

Linseed oil,	four ounces;
Spirits of turpentine,	half an ounce;
Spirits of sal-ammoniac,	one ounce;

Mix them in a bottle for use.

If, however, the tumefaction should increase, and suppuration ensue, it will be necessary to open the part with a lancet,—and dress the wound with the ointment No. 77; but this should only be done by some persons well acquainted with the process; or the most dangerous results may occur.



APPENDIX.

IN the foregoing pages, we have so largely treated on the choice and management of neat cattle and sheep, and so fully described the causes and symptoms of the disorders to which those animals are subject, that but little remains to be noticed in the Appendix. There are, however, some few instruments, used in several of the operations recommended, which require to be more fully described, as do also the method of performing one or two of the operations themselves.—We shall therefore proceed to notice these; and, first,

How to set a Seton.

Having prepared your seton, by plaiting tow and horse-hair together, or tow only, to the thickness of your little finger, and about a foot in length, dip it into the following ointment:

RECIPE No. 117.

Hog's lard,	four ounces;
Turpentine,	one gill;

Melt the lard, pour the turpentine to it while in a fluid state, and use it before it is cold.

Let an assistant hold the animal while you plunge the seton-needle, with the cord affixed to it, into the upper edge of the brisket, or dewlap; bring it out again at its lower edge, leaving a space between the two openings of about five to seven inches asunder. Fasten a small piece of wood to each end of the cord, to prevent the seton from dropping out.

In a few days, matter will begin to run; the cord must then be drawn backwards and forwards three or four times every second or third day, and again moistened with the mixture, No. 117. The parts will thus be irritated, and the discharge encouraged. The seton may be removed when the disease is subdued; but if set to prevent the black-leg, or hoose in calves, it may be suffered to remain till it rots.

Setoning is useful as a *prevention* of disease, particularly in the above two complaints: it is also productive of good effect in the joint-evil, as well as in most inflammatory complaints; its action diverting the increased determination of blood to the affected parts.

The animal should be sheltered from all cold winds, or damp weather, while under the effects of this operation.

To set a Rowel.

Rowels are set for similar purposes as setons, and are preferred by some farmers, as being convenient to apply to almost any part of the animal, so as, in some complaints, to touch more readily the seat of disease; while the seton must from its nature be confined to the dewlap.

With very sharp scissors, a sharp knife, or a lancet, make an incision through *the skin* of the animal; then introduce the finger and separate the skin from the flesh all round, as far as the finger will reach. A piece of leather, of the size of a crown-piece, with a hole in the middle, should then be inserted between the skin and the flesh, having first been dipped in the following stimulating ointment:

RECIPE No. 118,

Corrosive sublimate,	one fourth of a dram ;
Spirits of wine,	one ounce ;

Put a small piece of tow spread with this same ointment over the hole in the centre of the leather; lay the skin over all, and cover the part with a pledget of tow, also covered with ointment, to keep out the external air.

The parts around the rowel will, in two or three days, swell, at which time a yellowish discharge will appear, and gradually become thicker and whiter. At the end of the third day, it must be examined, and the plug removed from the *centre hole*, to allow the matter to flow freely.

The rowel is now complete, and may be continued as long as necessary.

In cases of extreme debility, rowels should be avoided; they are most useful in inflammatory affections, particularly of the external parts, in swellings of the limbs, and in strains of the shoulders.

Bleeding.

Bleeding is so generally useful, particularly in diseases resulting from overflow of blood and inflammatory attacks, that no person engaged in the care of cattle of any kind, should be ignorant of the method of performing this useful operation, or ever in want of the proper instruments; it being often necessary to apply to this at the instant when other remedies are not at hand.

The annexed plate (plate iv.) representing the situation of the veins in the cheek most proper for bleeding, cannot fail to be useful.

Explanation of the Plate.

- 1, The *vein* coming from below the under-jaw, at
- 2, and spreading its branches on the soft part of the cheek.
- 3, A small *nerve*, which runs in an opposite direction, and crosses over the vein; and care must be taken in the operation of bleeding, that this nerve be not divided. Below this nerve, a thick fleshy muscle is seen, which has the principal share in moving the jaw during feeding.
- 4, Another muscle, much thinner than the former, beneath which the branches of the vein of the cheek pass; it goes to the corner of the mouth, and assists in the motion of the lips.

The vein should be opened, in the operation of bleeding, at the part where it is largest, and nearest the surface, and where there is least risk of injuring any surrounding part. The place marked 1 will generally be found to answer best.

The vein may be felt distinctly coming from the branches of the trunk, and passing over the edge of the lower jaw to the cheek, about opposite to the third of the grinding teeth.—When the operation is to be performed, the left hand of the operator should be placed under the head

of the animal, and the under jaw grasped in such a manner, that the fingers come upon the right side of the jaw, so as to press upon the vein, a little below where it is intended to be opened.

By thus pressing on the vein, the flow of blood is prevented beyond the place where the pressure is applied: the blood, consequently, can now find no other course than the artificial opening about to be made. The operator opens the vein with his lancet, by making a slanting incision thus /, across it, at the place where the trunk of the vein is largest, and where it is most distinctly felt through the skin. While introducing the instrument, be careful to keep the vein from rolling under the skin, and escaping from the point: this is best accomplished by making the incision close to the point of the finger which presses upon the vein.

In plate 6, fig. 7 represents a phlebotome, or lancet of the proper kind for bleeding cattle.

The Probang.

This valuable instrument was invented by the late celebrated Dr. Munro, for the purpose of relieving blown or hoven cattle, from the confined air, which is now known to be the cause

of the swelling which is a consequence and evidence of the disease itself. The doctor had observed how subject neat cattle and sheep were to be blown, or blasted, by feeding on luxuriant crops, particularly where the animal had broken or strayed into a field of vetches, clover, or artificial grasses; and he observed that the common method of stabbing the blown animal in the side, was productive of serious injury in after cases of the kind*. To obviate this inconvenience, the doctor introduced this simple instrument, which he had the satisfaction to find completely answered the purpose intended.

Description and Use of the Probang.

This instrument is a flexible tube: the one used for neat cattle, is five feet long, and half an inch in diameter; that for sheep is, of course, proportionably smaller. It answers a double purpose: 1st, for removing the confined air in the stomach of the blown beast; and 2ndly, by acting as a probang to remove any stoppage in the throat, which frequently occurs to cattle by taking roots for food, as turnips, &c.

* See hoven, blast, or blown, page 188.

The manner of administering this useful instrument is plainly shewn in the annexed plate, (plate v) and in plate vi, the construction of the Probang is minutely explained.

The end marked *c*, is that which passes to the stomach, to relieve the blown animal; the end marked *b*, is the end which is inserted to remove any obstruction, or lump of food in the throat. The whalebone probe keeps it sufficiently firm to enable the operator to proceed with the greatest ease.

Explanation of Plate vi.

- Fig. 1. *a*, the flexible tube made with leather,
b, a hollow horn ball, through which the air escapes.
c, the end which passes to the stomach.
d, d, a two-inch horn runner, put on the whalebone probe, to prevent it going beyond the end of the tube, when it is not required to do so.
e, the handle of the whalebone tube.
- Fig. 2. The whalebone probe, with runner upon it.
- Fig. 3 and 4. The ends of the tube enlarged.
- Fig. 5. The gag, or mouth-piece. This is a piece of wood, with a hole in it large enough to admit the tube, and which keeps it from being bitten; to

the ends of which is fastened a strap, which buckles behind the horns of the animal.

Fig. 6. Is an improved instrument, termed a *trochar*, with a silver *canilla*, useful for piercing the sides of blown or hoven cattle, when the animal is so furious that the probang cannot be used. This instrument is thrust into the sides of the animal, as you see it in fig. 6, marked *a*, and supersedes the more dangerous use of the knife. In drawing out the handle, you leave the silver *canilla*, marked *b*, in the side of the beast, through which the confined air rushes, and gives instant ease. That marked *c*, is the trochar, (which has a triangular point), without the *canilla*. That part of the side of the animal into which this instrument should be plunged, will be found described in the latter part of page 188.

Fig. 8, represents a drenching horn, very useful for administering medicine. There should be two sizes of this horn, the larger for neat cattle, the smaller for sheep.

The whole of the above instruments, together with all other articles used in cattle farriery, are manufactured and sold by Mr. Long, veterinary instrument maker to his Majesty, the Veterinary College, and the Army; 217, High Holborn, opposite Southampton-street, Bloomsbury, London.—Who kindly furnished the designs from which the above articles were copied.

Tenting Sheep, or Shelter.

It has been previously stated in our foregoing remarks, that exposure to the damp is alone the source of half the diseases to which neat cattle and sheep are subject: this is more particularly the case in snowy weather. A heavy rain may fall; but this must of necessity drain off; while snow, on the contrary, may remain on the land several days, and even weeks. In a great or continued fall of snow, sheep may be lost, particularly in a drift; and before it can be removed, the animals may have perished from want of sustenance.

It is very easy to remedy this serious inconvenience, and remove the cause of disease so consequent thereon. For this purpose, shelter must be afforded,—not confinement; particularly with regard to sheep, it being the very nature of these animals to rove unconfined, and be at complete liberty. For the larger animals, cattle sheds, or out-houses, are most useful, to which they can retreat at night, or in rainy or snowy weather; but, for sheep, these are inconveniently large, and unnecessarily expensive.

We shall describe two or three sorts of this

artificial shelter for sheep, merely recommending to the sheep-breeder the adoption of some plan of the kind, if he have any wish to rear them healthily through the winter.

For the first of these plans, we will refer to plate I.—A few poles are driven into the earth at equal distances, so as to form an oblong enclosure. Over these, a tarpaulin, or rick-cloth is to be stretched; which should, at the north side, descend to the bottom, also at one end, if convenient; the other, to face the south, must of course be left open. Into this a sufficiency of food should be put, and it will prevent all chance of the sheep being buried in the snow, however severe may be the fall.

The second plan is, to construct circular enclosures, the walls of stones, or turf: if of the latter, the base should be four feet thick, the top two feet, and the height six feet. In the middle of this enclosure, a pole should be erected, about eight feet in height; and over this a tilt-cloth may be thrown, fastened by pegs to the outside. One or two openings should be left as entrances, or door-ways, facing the south.

The third plan is simply to take advantage of trees already growing, by an extra stake or two

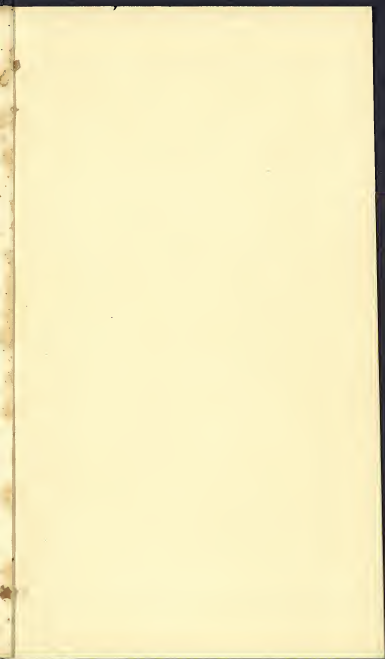
to form an enclosure somewhat similar to the first plan.

Whatever may be the plan pursued, food must be put within the enclosure, and the sheep will readily take to it, on all occasions, when rain or snow may fall. Nor need you be afraid that they will keep within the enclosure too much, for sheep are too fond of liberty to be confined when they can at all rove about.

In our description of cow-houses, in the first portion of the foregoing treatise, we stated that we should recur to the subject in the Appendix. Upon more mature consideration, however, we think that the preceding remarks on shelter, and the drawings of improved beast houses, are all that is necessary.

It is also stated in our description of the Dutch and Flemish farms, that the dung-pits are of a circular form; in our plate representing the same, (plate III), we have shewn these pits of a square, or rather, of an oblong form.—We have preferred the latter form in the plate, as being, in some respects, most adapted to the English idea of dung-pits.

FINIS.



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